



"I WANT A
TELEPHONE IN
THIS HOUSE!"



"**S**UPPOSE I get sick? After all, I'm only human. And if I do get a touch of colic . . . or have a nervous breakdown . . . do you know what'll bring it on? Worry! Yes, sir, worrying about how long it would take us to get the doctor if anything should happen.

"Or suppose a pipe bursts in the bathroom? Or a burglar comes along? When something like that happens you don't write a letter, or go after help on horseback. No, sir. You hop to a telephone!

"And what about my mother? She's got marketing to do. Sometimes she needs to get in touch with Dad during the day. And there are errands to be run. Well, she can't do all those things without a telephone . . . and at the same time give me the attention I expect.

"All Dad needs to do to have a telephone is get in touch with the Business Office. I'd do it myself if I could just get out. But I can't. So is it any wonder that worry is keeping me awake half the day?"

B E L L T E L E P H O N E S Y S T E M



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COMING

Millions of Americans will visit Boulder Dam this summer, for in addition to its irrigation, waterpower and flood control features it is rapidly becoming a great recreational center—chiefly because of the great lake the huge structure has created. In the July issue, John C. Page, commissioner of the Bureau of Reclamation, will graphically tell of this vast development.

Vacationists as well as conservationists will also enjoy the story of California's Point Lobos Reserve, by Newton B. Drury, secretary of the Save-the-Redwoods League. The same thing may be said of Leo Luttinger's "Drama in the Wilds,"—a candid camera story of what goes on behind the scenes in the world of wildlife.

There will also be "Leaf Lore With Carbons," an unusual presentation by George C. Mason; "What's Wrong With the Farm Woodlot?" by R. N. Cunningham; "Pollution in New England," by Robert Straus; "Forest Cook Stoves," by S. J. Clarke, and others you will not want to miss.

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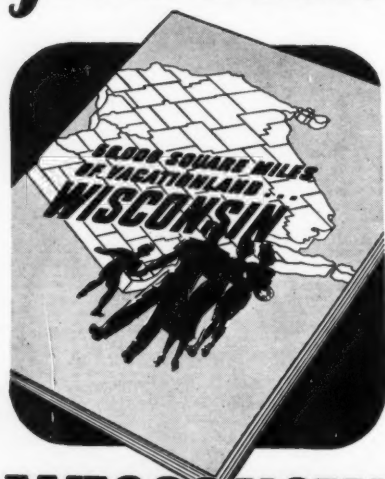
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The Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. All manuscripts should be accompanied by return postage. The Editors are not responsible for views expressed in signed articles. . . . Notice of change of address for AMERICAN FORESTS should be received by the tenth of the month preceding issue.

Member A. B. C.

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RELAX IN WISCONSIN

READERS' FORUM

PRIZE ACORNS

SIR: The Tennessee Valley Authority Department of Forestry Relations and its tree crop specialist, John W. Hershey, want to take this means of thanking you for your recent help in furthering the department's search for a superior strain of acorns, needed in its tree crop experimental work, in publishing our announcement. A large number of acorns of superior quality were submitted despite the fact that no rewards or prizes were offered.

Perhaps you will be interested in the results: The acorns were of three types—white oak, swamp chestnut oak, and chinquapin oak. Selections were made on two counts: first, sweetness (the proportion of tannic acid and sugar in different species of acorns varies considerably), and second, the value of the tree as desirable timber.

The best white oak acorns were submitted by Josiah N. Lint, Somerset County, Pennsylvania, and Mrs. R. O. Mossman, Newark, Ohio. The white oak acorn is high in sugar content and low in tannic acid. It is especially desirable as mast for hogs and other stock. Those submitted by Mr. Lint were as edible as Japanese chestnuts.

The swamp chestnut acorns sent in by W. M. Soloman, Iuka, Mississippi, and Mrs. Olivia Moore, Perkinston, Mississippi, proved the best of this species. These samples were of remarkable size, those from Mr. Soloman requiring only forty to the pound, and Mrs. Moore's, still larger, only thirty-six. The acorns of the swamp chestnut, sometimes known as the cow oak, are quite free of bitterness and excellent as stock feed.

James Sonner, Hillsboro, Ohio, submitted the best samples of chinquapin acorns. The small size of these sweet acorns makes them very attractive as bird food. The samples sent by Mr. Sonner weighed up no less than 349 to the pound.—Richard Kilbourne, Acting Chief Forester, TVA, Norris, Tennessee.

A NOBLE AMERICAN

SIR: Owing to my age—seventy-one—and financial condition I truly regret that I cannot renew my subscription to your great association. Four years ago I got blood poison in my ankles—lay flat for many months—came near dying. I have doctored, bathed and bandaged, trying to get well, but failed. Find myself permanently crippled.

But, I am still carrying on for the Ideal I cherish—CONSERVATION OF GAME, FORESTS, AND FISHES. For fifty years I have struggled—been beaten all down the line. Served eight years in the Oklahoma Senate, wrote most of our game laws, but now I am as my old friend Stute Sequoyah said—"Busted Fish."

I am a Cherokee—lived my life here—saw our wonderful forests become a melancholy memory. Your association is doing a wonderful work. As an Oklahoma and Indian Territory pioneer, I am proud of you.—Gid Graham (Ga-gah-lah)—Pawhuska, Oklahoma.

TREATING IVY OR OAK POISONING

SIR: I have had oak poisoning on the Arizona desert and ivy poisoning from the wind blowing over the vines as I passed in a closed car in mid-January.

However, I have been so fortunate as to happen on a simple and effective remedy. It is just constant sopping of the poisoned surface with pure alcohol, or, easier yet, a drop on the surface and let it dry. It gives immediate relief, and, if continued, will dry up the pustules in two days.—Miss Florence Keen, Haverford, Pennsylvania.

HEMLOCK MATTRESSES

SIR: I have been very interested in reading Mr. E. M. Davis' article entitled "Wooden Mattresses For Old Man River" (October, 1937). In mentioning various types of wood used for making mattresses, Mr. Davis omitted mentioning an important species, namely West Coast Hemlock. Several million feet of this material have been used in the construction of mattresses during 1936 and 1937. The writer has personally been interested in contracts for over two million feet, which were furnished the government entirely in this species. We have found that West Coast Hemlock is particularly adapted to mattress construction, because it is pliable and usually contains a type of small, tight knot. Furthermore, there is an ample supply of this species in the Pacific Northwest.

I would, however, take exception to Mr. Davis' statement that the requirements for mattress lumber are not exacting. It has been our experience that the specifications insisted upon by the Army Engineers have been quite rigid.—R. W. Adair, Seattle, Washington.

FIRST MEMORIAL TREE

SIR: I originated the Memorial Tree way back in the early Nineties when I ate about the best apple ever—and saved the seeds. The other kids said I could not plant an apple seed and grow an apple tree, but my teacher said that I could. Before I tried it out, however, my father bought me some apple trees and planted them for me. I did him the honor of naming one for him. I called it my "Memorial Tree."

Later I married and moved to Memphis where my husband became a member of the School Board. Contacts with teachers and others of the school system started me on the Memorial Tree idea again—and it went like wildfire.

More recently, in thinking of the devastating floods and how they could be prevented, it occurred to me that if every person in the United States between five and seventy-five would plant Memorial Trees at the source of little streams, floods could be avoided.—Marta S. Conser, Memphis, Tennessee.

PLENTY OF RETURNS . . . ALONG THE "RIVER OF NO RETURN"!

Here is a "Caterpillar" Diesel Auto Patrol, owned by the U. S. Forest Service, making a good return on the original investment — as it works in the country of the Salmon River, also known as the "river of no return."

As a matter of fact, there is nothing more economical — for building and maintaining roads — than a "Caterpillar" Diesel Auto Patrol. This machine is working 8 hours a day (5 days a week) on *less* than 1½ gallons of cheap Diesel fuel an hour!

But it's not only fuel-economy that brings down the cost of roads.

You need power . . . traction . . . and speed. You must have dependability, ruggedness and strength for hours of trouble-free work. You need a machine that doesn't specialize, but handles almost every phase of every job that comes up.

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GOV. JAMES A. BEAVER
President, The American Forestry
Association, 1888-1890

■ Following the Hon. Coleman R. Pringle in office, Gov. James A. Beaver, of Pennsylvania, was elected President at the 7th Annual Meeting held at Atlanta, Georgia, in December, 1888, and succeeded himself at the 8th Annual Meeting, held in conjunction with the Pennsylvania Forestry Association at Philadelphia on October 18, 1889.

Governor Beaver, whose ancestors were French Huguenots, was born in the old family homestead at Millers-town, Pennsylvania, on the Juniata, on October 21, 1837. The record of his life and achievements writes him down as a distinguished American, noted as a soldier, statesman and conservationist. After graduating from Jefferson College in 1856 he read law.

His military career started in '61 and in 1862 he was commissioned colonel of the 148th Pennsylvania Volunteers which he commanded during the Antietam campaign. He fought at Fredericksburg and Chan-

OUR PRESIDENTS

cellorsville, was wounded and sent back only to return to the front and distinguish himself at Auburn Hill. From this time on he was with the Army of the Potomac, sharing in Union victories with Grant to Richmond. At Cold Harbor he was wounded in the right hip. Resuming command, he was literally blown up by a shell bursting almost under his feet. Badly wounded, he was sent North to recover. Returning, he commanded the Fourth Brigade of the Second Division, under General Hancock. Losing his right leg and suffering three other severe wounds, he was forced to retire from active service in 1865, after four years in the Army characterized by quiet bravery and performance of duty that gained him the respect and admiration of all men.

Returning to civil life and the practice of law, he became active in politics. He was elected Governor of Pennsylvania in 1886 by a large majority. He was the first to explore and adopt industrial education in Pennsylvania. An advocate of the natural sciences, he did much to stimulate public interest and activity in tree culture and planting. Governor Beaver grew up at a time when forest destruction was going on at a tremendous rate and he might be called the father of Pennsylvania forestry, as he was the first to give official warning of the danger which threatened Pennsylvania forests.

He strongly advocated flood control even before the disastrous 1889 flood which occurred while he was Governor. It was under his administration also that the first Forestry Commission of Pennsylvania was organized, and Governor Beaver first brought into the State Service as chief forester Doctor J. T. Rothrock. An important piece of work done by the American Forestry Congress during his administration as President was the conference of its Law Committee with the President of the United States which helped to bring about passage of the Act of 1892, creating the federal Forest Reservations, — the beginnings of the present National Forest system.

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THE EDITOR'S LOG

WANTED—A MILLION DOLLAR IDEA!

This call is issued by The American Forestry Association in behalf of the forests of America. It will be paid for not by the Association but by the trees themselves in terms of services rendered to all the people—protection of soils, waters and wildlife, preservation of outdoor recreation and scenic beauty, production of material products that enrich every home, maintenance of opportunities for labor and commerce.

The idea sought is one that will strike consciousness into the minds of the American people that forest fires must be stopped. It must be susceptible to portrayal in poster form. The Association has just made arrangements with the noted artist James Montgomery Flagg for a forest fire prevention painting to be reproduced in poster form for distribution in every section and corner of the United States.

Upon completion, the painting will be made available to the Forest Service and cooperating forestry agencies throughout the country to form the central feature of an intensive forest fire prevention campaign to extend throughout 1939. A million posters will be struck off and every educational medium, including radio, newspapers, news reels, magazines, local and regional organizations, will be utilized in a special effort to make the American people more forest fire conscious.

The record shows that seventy per cent of the forest fires today are caused by the carelessness of smokers and campers and by the irresponsibility of a public frequenting our forests in increasing numbers during the fire seasons. Readers who believe they have a poster idea or slogan that will reach these fire starters are requested to send it promptly to The American Forestry Association, Washington, D. C. The idea considered best will be passed on to Mr. Flagg who will make it speak to all America in poster form.

* * * * *

A Department of Agriculture pathologist has focused attention upon one angle of the fight on the Dutch Elm disease heretofore given little publicity; namely, that we are actually fighting less Dutch Elm disease fungus, *Graphium ulmi*, than other fungal and bacterial diseases which cause similar symptoms in elm trees. Of the 84,636 samples of suspected elms sent in by laymen and official forces in 1937, only 7.4 per cent were infected by the Dutch Elm disease. On the other hand, 29.4 per cent were infected with another fungus, *Cephalosporium* (found in a much larger area over the country than *Graphium*), and 46.8 per cent with a variety of miscellaneous fungal and bacterial diseases. The remaining 16.6 per cent were sterile, giving no positive reactions at all to culturing.

But, as our authority points out, the Dutch Elm disease is in all cases fatal. *Cephalosporium* disease, which causes a wilting and dying back of elm tree limbs, not only can be cured but its progress in a tree can be arrested by timely therapeutics. Seldom, if ever, does it kill an elm. Dutch Elm disease always kills and, furthermore, unlike other known diseases, its great danger lies in its epidemic potentialities.

So, the war on the Dutch Elm disease, a fatal malady, serves to focus attention on these other elm diseases which might never have been given proper investigation. By concentrating on the central theme of "Save the American Elm" and waging the war in the name of the one absolutely fatal disease which attacks elms, a great deal of valuable research is being done on elm diseases heretofore neglected because the deadly, dramatic element was absent.

Orin Foster
Editor.



EYES ON THE FOREST

The Lookout Station — fourteen feet square, two stories high, and securely cabled to the rocks

THE "STRIKE"

A heavy electrical storm struck the mountain area and a large number of people — Park employees and visitors — witnessed the "strike" and the smoke of fire rising. Within five minutes the stand-by crew was on its way to the scene





THE RED TERROR

A close-up of the fire —
roaring through an old burn

FIRE ON THE MOUNTAIN!

By ALBERT D. ROSE

Photographs by the National Park Service

SEVERAL years ago Hollywood released a motion picture with a ranger as its hero, the scene laid in a primitive forest of the Northwest. The hero was real enough, and the setting sufficiently authentic, but at that point its similarity to actual forest practices and conditions ended. To real foresters its melodramatic moments were great comedy. Yet by many it was accepted as a graphic presentation of the life and customs of Uncle Sam's guardians of the forests, the National Forest and National Park rangers.

For example, there was the comely lady lookout in a Mother Hubbard dress, standing on a sylvan knoll. Her sole equipment was a big telescope mounted on a tripod. But watch her go into action.

She starts suddenly, shades her eyes Indian fashion, then dashes to the telescope. Another tense moment, hands clasped to heaving bosom. Then she gathers up her Mother Hubbard and dashes madly down the hill.

The lady has discovered a forest fire. And what is more to her credit, she did it without benefit of scientific equipment or methods—in fact, against great odds. She could have done much better without the telescope, because it is extremely difficult to locate a smoke from a fire with a glass, even though it may be distinctly visible to the naked eye. Broad vision field glasses of very low power are sometimes used, but ordinary smoked glasses are better. Binoculars and telescopes are used to study the terrain and forest cover after the

fire has been discovered. But how was the poor girl to know that?

And how did she describe the location of the fire to the ranger? Only the movie director knows. She employed no fire-finder, compass, nor map. She merely pointed toward Bagdad, and fainted. The rangers did the rest—about thirty of them. Outside of a convention, it is doubtful if that many rangers were ever all in the same township at the same time, much less stationed at one forest outpost. But there they were, in full uniform and waiting to hear from the lady lookout. When the chief ranger called them in they lined up against the wall and saluted as their names were called. Then they ran out, jumped into a truck and went to the fire, neckties and all. They took no fire fighting equipment, not even a shovel. Perhaps they planned to blow the fire out.

All of which is a shining example of how *not* to fight a forest fire.

Forest protection from fire as practiced by the Federal Government is a highly specialized and scientific procedure. Hundreds of highly trained men have made it their lives' work. Millions of dollars have been spent for fire fighting equipment, and experts are constantly on the alert to discover new and better equipment and methods for combating this scourge of our forest lands.

But how is a forest fire discovered and extinguished? Nearly everyone has seen firemen fighting a building

fire, but relatively few have seen men fight fire in the big timber. The two types of fire fighting are distinctly different. On a forest fire seventy-five per cent of the work is expended in separating the fire from the remaining unburned inflammable material. Water is the principal agent used in extinguishing a building fire. On forest fires there is often no water available, and even where it is available its use is generally confined to "mopping-up" and in holding relatively quiet sectors of the fire line.

But to thoroughly understand all that is implied by the term "fire protection" as practiced by the National Forest and Park Services a concrete example would better serve the purpose. Mount Rainier National Park, in the western part of the State of Washington, can supply such an example.

This park embraces some three hundred square miles of rugged mountain area. Roughly, two-thirds is forest covered, ranging from the dense lowland stands of Douglas fir and hemlock to the stunted alpine firs and twisted mountain hemlocks that grow up to the very glaciers on the precipitous flanks of the great mountain. Roads are few in this wilderness, but trails wind through the deep valleys and switch-back up to the summits of wind-swept peaks. And scattered here and there on their lonely peaks the fire lookouts hold their vigil.

But let's climb the winding trail to one such vantage point and have a look at a modern fire lookout and his little station. We find it a far cry from the mounted telescope and the lady in the Mother Hubbard.

The lookout station is fourteen feet square, two stories high, and is securely cabled to the rock upon which it stands. A continuous row of windows completely around the four walls of the observation room affords the observer a complete panorama view of the surrounding forests. These windows are of plate glass, used to eliminate the distortion commonly noticed in ordinary window glass. This being a newer type station, the fire-finding instrument is mounted on a stand in the center of the room, instead of in a cupola on the roof as in the older type stations. The floor is of hardwood and the lookout glances at your shoes as you enter. If they contain calks you will be invited to leave them outside, *a la* Japanese. Besides the fire-finder the room contains a bed, folding table hinged to a wall, one chair, a low stool and two gas stoves, one for heating

the room and one for cooking. A gas light fixture is suspended from the ceiling. The lookout explains that the gas is brought up in metal cylinders by pack train and connected to pipes in the basement. He also explains that wood stoves are taboo because of the difficulty of packing up and storing the wood and because of the lightning hazard

that would result from a chimney with its column of heated air. In fact, you learn that the reduction of the lightning hazard is an important factor in the construction and furnishing of the lookout station. Instead of steel springs on the bed you notice a wide-meshed net of quarter-inch rope fastened to the wooden framework. The chair and the low stool have their legs set in large glass insulators. During an electric storm the lookout may sit on the chair and put his feet on the stool, and thus insulate his body from the building. Lightning rods bristle from the roof, and heavy copper cables encircle the building at the eaves and window sills, the entire system being coupled to the copper cables that extend several hundred feet down the mountainside from the four corners of the building and end in pits



Fully organized fire crews are always ready to take the trail. Trucks loaded with fire tools, bed-rolls, telephones, radios, pumps, rolls of wire and hose are stationed throughout the Parks. This is an emergency distributing camp, back of the fire lines



Fire protection as practiced by the Federal government today is a highly specialized scientific procedure, directed by trained men. The finest modern equipment is used. This picture was taken with the photo-recording transit, used as an aid in fire detection. The azimuth bearings on the upper margin and the vertical bearings along the side margins agree exactly with those on the lookout's fire-finding instrument—and so the minimum of time is lost locating fires and in getting crews to the scene of the fire

filled with coils of wire, charcoal and salt. A rather complicated system, you say, merely for protection against lightning. Then it is suggested that the visitor make it a point to be at the lookout station the next time the weather man predicts a lightning storm.

This time you find the lookout strangely preoccupied. His attention is riveted to that dark cloud on the southwestern horizon. Frequently he swings the sights of his fire-finder in that direction, jots down some figures and phones them in to the fire dispatcher at headquarters. Lookouts all over the park are doing likewise. Other lookouts call in frequently to compare notes on the approaching storm. Down at headquarters the fire dispatcher is plotting the location of the storm from these reports, and trying to ascertain whether or not it will sweep across the park.

In the southwest the sky is becoming darker. Mount St. Helens is no longer visible. Mount Hood, down in Oregon, has been obscured for several hours. Soon Mount Adams is lost to view, and a black cloud is forming on the summit of Mount Rainier, towering above us. A sliver of light darts from the sky, followed a few seconds later by a low, ominous rumble.

The lookout returns from the telephone. "It's heading this way," he warns, "and should get here inside of forty minutes. If you want to go down you'd better start now."

Some of your self-assurance has been shaken by all this activity, but you've been in electric storms before. You elect to stay.

The sky is quite dark now, and the oppressive silence is broken only by the increasing rumblings. There is no

breeze, and the air even at that altitude is almost stifling. You glance out the window and notice something peculiar. Little blue lights are crackling on the copper cables.

"Static electricity," the lookout explains. "Don't touch any wires or pipes. You'd better get up on that chair and sit tight."

A brilliant dagger of fire stabs a barren ridge two miles away. The house shakes with the following crash. The lookout is at the telephone calling the ranger in charge of this district: "It's striking on Cowlitz Ridge. No fires yet. I'm throwing the switch."

He steps outside and pulls the switch rope, then runs along the catwalk that encircles the building at the second-floor level and disconnects the short-wave radio antenna. He drops the loose end on the ground, away from the building.

Then comes another crash, blinding in its brilliancy. You sit staring stupidly as the mountain fairly rocks with the crash. More flashes. The earth is trembling constantly now. The din is terrific. You glance at the lookout.

He is standing on the insulated stool with a pencil and three large panoramic photographs of the surrounding territory in his hands. As each bolt strikes the ground he puts a mark at the corresponding spot on the photograph. He holds one up for you to see and you notice that bearings in degrees of azimuth, similar to those on the fire-finder, are printed on the margins of the photographs. He points toward a misty veil that is beginning to blur a distant ridge. "Rain!" he yells above the noise. There is evident relief in his voice.

A silver streak darts down from the sky. It appears to bounce as it touches the (Continuing on page 286)

ENTER THE SEA FARMER

By BLYE ENGLIS

PSEUDO - CONSERVATION began in the Northwest when Japanese oysters were introduced to replace the native ones that man's greed had well-nigh exterminated; the Pacific sea plunderers became "sea farmers" who went in for conservation—at so much per.

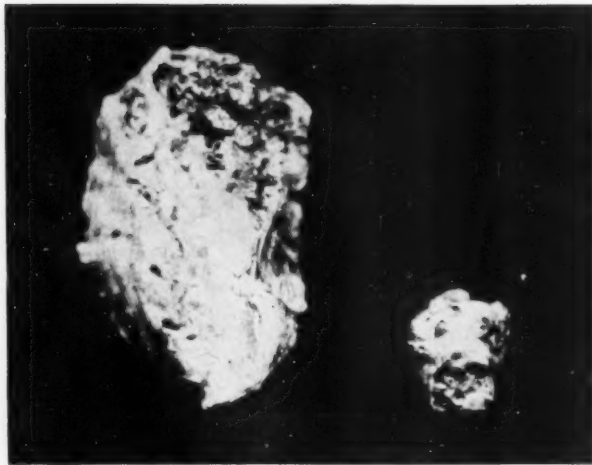
Back in the late eighties the native oyster, *Ostrea Lurida Carpenter*, flourished abundantly in Washington and Oregon and until plundered by the white man had scarcely been touched by the Indians. San Francisco was then the only large town on the Coast and its consumption of Northwest oysters was enormous. In those days men were men to whom three dozen native oysters, only slightly larger than the Olympia, were a mere nibble. To meet the demand, schooners plied busily between the Northwest and California, bringing down as many as 4,000 baskets of oysters at a time, even though so great a cargo meant that many died en route.

The oysters drew a good price and the oyster gatherers were carefree and prosperous. But Nature, at first indulgent, grew stern and forbidding as year after year they plundered these natural oyster beds so ruthlessly that what seemed inexhaustible supply finally flickered out and the native oyster industry was doomed.

What caused this calamity? An oversight that Nature would not overlook: not only were the beds constantly disturbed but all oysters were shipped out in the shell and not one shell was returned to the beds for the young oysters to fasten upon and grow. With no reproducing possible these age-old beds were depleted in a few decades—the goose that laid the golden egg was again slaughtered—this time by sheer ignorance. But this goose left its nest behind—rich oyster growing bays. And shrewd minds planned to transplant oyster seed from the East Coast. Soon, they promised themselves, they should again have oysters in abundance, oysters that would spawn and reproduce, *ad infinitum*.

A clever plan and cleverly followed through, because this time the young oyster was given some consideration; it was to have proper bottom conditions in which to attach itself to an object and reach maturity in the fullness of time. Nature allowed the transplanted oysters to grow but,—shades of Neptune!—no spawning took place. After the first shipment matured and was marketed, the beds were empty again.

Seeing is believing, and after repeated failures the question that throbbed up and down the Coast was



The large adult Japanese oyster (*Ostrea Gigas*) compared with the small native adult oyster of the Northwest (*Ostrea Lurida Carpenter*)

"Why do eastern oysters grow here but fail to reproduce?" The chief reason was that the waters were too cold. The Atlantic Coast is threaded with brackish bays and inlets that are protected from the ocean cold. Except for a few bays, the Pacific Coast is almost entirely exposed to the ocean. The transplanted oysters grew in the unaccustomed colder Pacific waters but lacked sufficient warming influence to spawn and reproduce. Thus another barrier faced the oysterman, one that was not hurdled until they forsook

the temperamental eastern oysters for the more sturdy Japanese oysters of the Pacific.

Several kinds of Japanese oyster seed were experimented with, for first it must be determined by comparison which Japanese oyster would thrive best in American waters. The race was not to the swift but to the hardy. Already inured to the cold water, every bivalve started from scratch. There were no favorites, but soon *Ostrea Gigas*, meaning Gigantic Oyster, nosed out the others and was proclaimed the winner. It could endure heat as well as cold; its shell was deeper and the oyster, of delicious flavor, was thicker and rounder than the eastern. Our native oysters need four years to reach maturity; *Ostrea Gigas* required only thirty months. What is more, it grew fat and juicy in localities where other oysters could merely exist.

News of the discovery was broadcast and soon there was an oyster boom. It was just before the depression and "oyster land" sold for as high as \$500 an acre; companies were formed and the new sea farmer cried "All clear ahead!" But Nature, still smarting from the extinction of her native oysters, laughed derisively. Much of the land sold was not fitted for oyster growing; shells to catch the seed were often spread too soon so that the seed did not take; the seed would gather in one place, causing the oysters, as they grew and expanded, to suffocate each other for lack of room; starfish that accompanied the seed from Japan multiplied and fed on the new oysters to ruinous extent; seed planting began in March and early storms moved out entire new beds, leaving the sea farmer stranded and gazing at empty scenery. The transition from sea plunderer to sea farmer was not an easy one. Wild expectations at last sobered down to hard labor, bitter disappointments and terrific losses.

But his trials were not yet at an end. He found that his oyster, requiring thirty months to mature in Japan,



To the left is a bed of Japanese oysters — improperly grown, due to close crowding. Below is a mature bed, properly planted and grown to yield a maximum commercial crop

needed only twenty-four months—in American waters. On the face of it this would appear a blessing, but to his dismay, he found also that Northwest consumers disliked too large an oyster and if he could not market them before they passed maturity he must take a heavy loss.

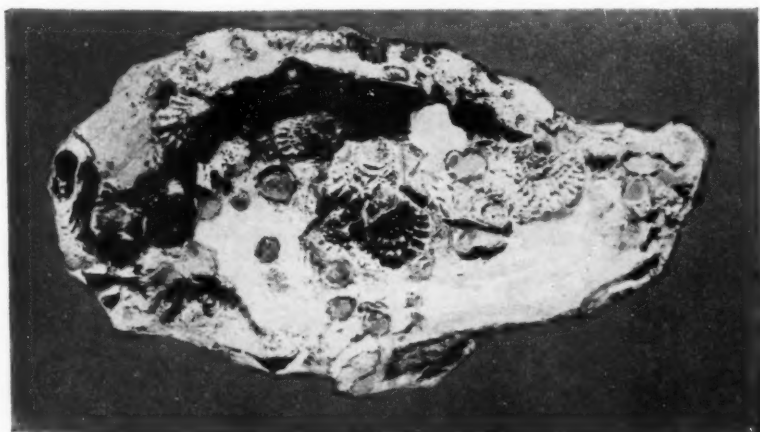
By now, however, his probation days are over. Success is no longer just around the corner and he boasts, with some truth, that because of the low price of his product the average citizen can now indulge himself in oysters without having to mortgage the old homestead.

Naturally the Eastern growers, with their higher priced oyster, are resisting the ingress of the Japanese oyster in no uncertain terms. They, too, over-exploited their natural beds and are suffering the consequences—scant crops. But while Northwest conditions are still ideal for oyster growing, the Eastern oyster continues to lose ground. Nature is always practical and the wave that rolls in majestically to the rapture of poet or painter is surcharged with minute organisms of food for shellfish and mollusk alike. Tides that “wait for no



man” wait on the oysters twice a day by stirring up food for them in the mud and sand. But Nature made no provisions for combating the poisons of stream pollution so rampant in the East which cause the oyster to clamp its shell shut until it starves; or sawdust from lumber mills that, filtering over their beds, chokes them to death; or over-exploitation by man which leaves no oyster at all.

Many easterners defend their favorite brand of oyster vociferously, not knowing that there is in reality but one eastern commercial oyster, *Ostrea Virginica*, despite such high-sounding names as “Blue Points,” “Cape Cods,” “Stony Creeks,” “Cotuits,” and “Narragansetts.” These names merely indicate the locality in which they grew and mislead when taken to infer a different species. Not to be outdone by his eastern competitors and to counteract a certain prejudice against the name “Japanese oyster,” the sea farmer now calls
(Continuing on page 286)



Oyster shell and seed as it looks on arrival from Japan, weighing two to four ounces. The grown oysters will form a cluster weighing from twenty-five to fifty pounds

SOME DESIRABLE SHADE TREES

By J. M. BENNETT

IF a straw vote were taken today to determine the most popular shade tree in the United States, the American Elm would undoubtedly win by a large majority. At least its great popularity is generally conceded east of the Rockies.

Although beset with many insects and other pests and seriously threatened by the Dutch Elm disease, it continues to be planted in large numbers. Several substitutes have been suggested in case the Elm goes the way of the American Chestnut and while many of these may be more suitable in view of probable impending losses, none can replace it in the hearts of its admirers. Its form and habit is distinctive, it is well known in most every locality and if it passes, the loss will be irreparable.

In spite of the high regard in which the American Elm is held, there are other desirable trees which provide excellent shade and which are more or less attractive in appearance. Among these are the Pin Oak, Red Oak, Willow Oak, White Oak, Norway Maple, Sugar Maple, Red Maple, Tulip Tree, European Linden, and Horsechestnut. City foresters, highway foresters, park superintendents and landscape architects realize the value of these trees for certain locations and they are frequently planted.

Other trees which are equally desirable for many situations but which are planted less frequently, include Burr Oak, Swamp White Oak, Chestnut Oak, Scarlet Oak, American Sycamore, Kentucky Coffee Tree, American Basswood, American Beech, various Ashes, Ailanthus and Sour Gum.

The Burr Oak which reaches its greatest size in southern Illinois, Indiana, Ohio and throughout Kentucky is considered the outstanding oak of that region. The Swamp White, Chestnut, and Scarlet Oaks will thrive in most any section east of the Prairie States provided the soil conditions are suitable. The narrow leaves of the Chestnut Oak may be preferred instead of the coarse foliage of the Swamp White Oak and the Scarlet Oak is excellent for fall color. These oaks are clean, hardy trees and they furnish the best of shade.

The American Sycamore is well known to almost everyone yet its use is small as compared with other



The Sour Gum (*Nyssa sylvatica*), has an oddly attractive form and is unequalled for the splendor of its autumn coloring

trees. In a natural environment it produces a perfect form and reaches an unusual size. This tree is very popular throughout the Ohio and middle Mississippi River valleys.

The Kentucky Coffee Tree is sparingly native from New York southward and is most common in the Ohio River Valley, where it grows to its greatest size. This tree is often planted as an ornamental curiosity because of its coarse and frequently erratic branches. Although it is more valuable for this purpose than for shade, it serves well in many locations as a shade tree.

The American Basswood, Beech and Ashes are all desirable shade trees although they are not always suited to the same locality. Any one of them adds much to the value of residential property. The Ailanthus or

Right — Suffering practically no
ills, the Kentucky Coffee Tree
(*Gymnocladus dioica*), is a valu-
able lawn and shade tree

Below — The American Sycamore
(*Platanus occidentalis*), will with-
stand the smoke and dust of city
conditions



Right — Swamp White Oak
(*Quercus bicolor*) will grow well
in any good soil with average
moisture conditions



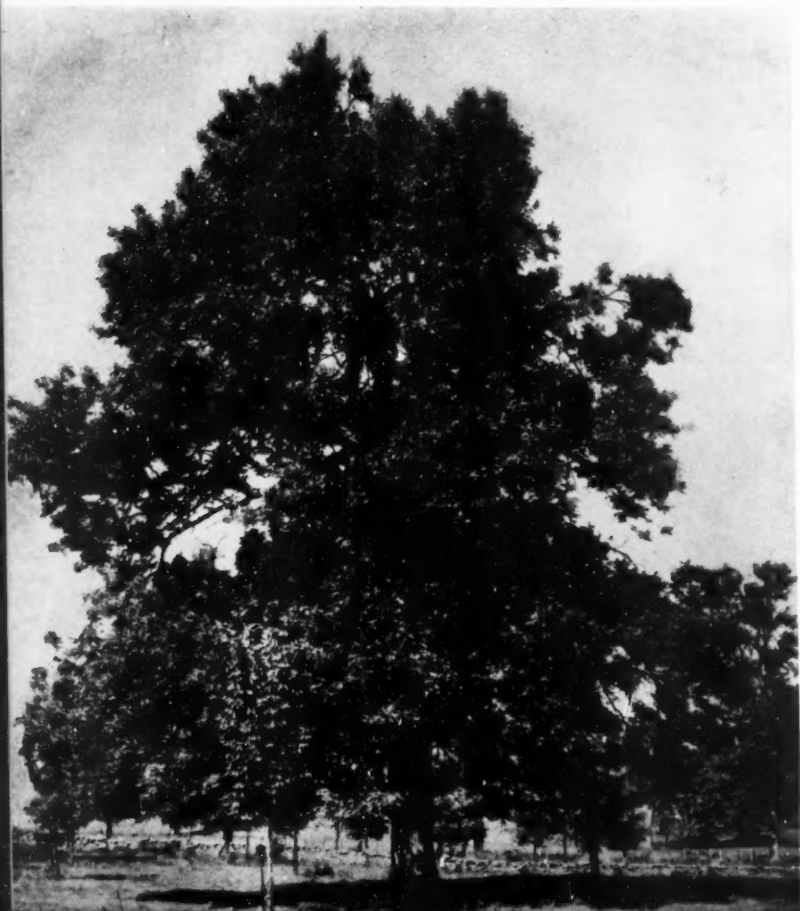
Tree-of-Heaven, has been severely criticized as an undesirable exotic. This is due in part to its weedy habit of spreading by means of seeds and its prevalence in unrestricted and neglected city areas. In many cities, however, it is the only tree which will grow under such conditions and it provides the congested sections with the sole means of shade from a natural source. It is in reality a tree from Heaven to the tenement districts. Under the most favorable conditions it develops a diameter of four or five feet and a height of sixty to seventy-five feet.

The Sour Gums with their brilliant fall foliage stand out here and there over the countryside like flaring torches against a background of lesser hues. The seasonal brightness of the leaves is unequaled by those of other trees and the drooping and horizontal branches are strikingly unusual. Because of its undependable form, this tree does not always provide the best in shade but what it lacks in this respect is made up by its attractive although odd appearance.

Every tree has something to merit its existence in some location although all trees are not everywhere desirable. While it is true that opinions differ regarding trees because of various reasons, yet, regardless of the species, large, healthy specimens always command respect and admiration. If the ultimate size of trees is kept in mind and an unselfish policy maintained at the time of planting rather than a desire to obtain shade in a short time by the use of cheap trees, many trees which are



Picturesque, towering and of rapid growth, the American Basswood (*Tilia americana*), deserves consideration for many planting situations



seldom used will be of unlimited value to future generations.

And after all, what heritage could be more significant of a noble character than living monarchs established by the hands and foresight of one who lived perhaps generations ago? Trees are not tombstones but living monuments of an eventful past still serving the masters who planted them. They may span several human generations and in so doing they help in a large measure to preserve the memories and accomplishments of those who have passed on. And so, in selecting and planting trees, there is much more to consider than just the benefits of immediate shade. And also the chances for survival in the years to come are much greater if various species are used. This practice in itself will aid greatly in preserving the American Elm.

While not in general use, the Blue Ash (*Fraxinus quadrangulate*), is one of the finest native shade trees

THE CASE OF THE WHITEFISH

By MORTIMER NORTON

NEARLY twenty years of angling for whitefish, and many contacts with other fishermen, have convinced me there still exists much confusion and misunderstanding over this member of the salmon family. Indeed, for so widespread and important a fish in northern United States and Canada, it is surprising what limited knowledge exists among anglers of the habits of whitefish and of methods of catching them.

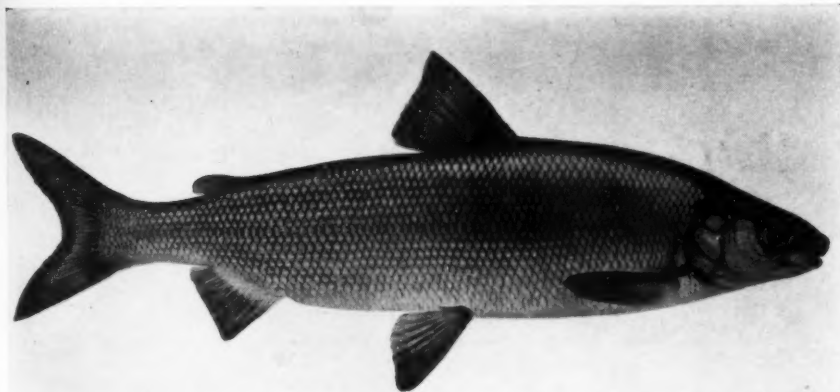
What has caused this situation? Chiefly, the majority of fishermen cling to the erroneous idea that this species cannot be taken with hook and line, that the fish may be captured only by netting or by the use of snatch-hooks. If you visit some of the lakes of Ontario, for instance, where pike, bass, or lake trout and whitefish dwell, you may be told: "Yes, this lake contains a lot of whitefish, but you can't catch 'em. Oh, you might pick one up now and then by mistake, but as a general thing they won't stay on your hook."

A similar assertion may be heard in the lake region

of Minnesota, and in New York, where the common whitefish—largest, most numerous, and sportiest of its clan—has been caught by those fishermen who have investigated its angling possibilities. But on the whole, comparatively few sportsmen have landed an eastern whitefish, or have even made an earnest effort to do so.

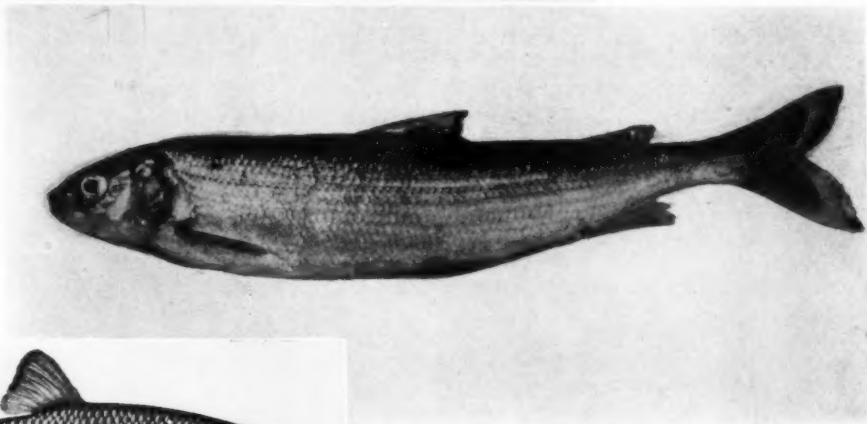
In the west, on the other hand, the smaller Rocky Mountain whitefish are caught more often with live bait as well as artificial flies and spinners. This is particularly true in Wyoming, Colorado, Idaho, Utah, Montana, and in the streams of the Pacific Coast. In certain sections these fish bite readily while the angler is engaged in fly casting or still-fishing for speckled trout. Usually they give such energetic seraps—even though short lived—that fishermen lucky enough to land them are well pleased. Despite this, however, there are many western sportsmen who have had no experience in taking this species.

Rocky Mountain whitefish thrive abundantly in lakes



The Adirondack, or common whitefish—largest and sportiest of its clan and always to be distinguished from the fallfish or chub by the adipose fin near the forked tail

(Photographs by the New York State Conservation Department)



The Rocky Mountain or western whitefish has similar physical characteristics but seldom attains the length, breadth or weight of his eastern cousin



Left—The fallfish or Mohawk chub—most often mistaken for the whitefish but—note the absence of the adipose fin

and streams of the region from which it took its name, both in the United States and Canada, while its eastern relative, the common whitefish, lives principally in deep, cold, clear lakes, generally entering the streams only in late fall to spawn.

Since the prevalent conception has been that eastern whitefish cannot be caught by ordinary angling tactics, they have not received a fair measure of attention. Common whitefish are highly important and well known commercially, large quantities being netted from the Great Lakes and Lake Nipigon yearly to supply a world-wide market. From the sport fishing standpoint, though, they have been slighted and underrated.

Fishermen simply have not experimented seriously with whitefish. Indeed, they have not known what tackle and methods to use, or how to handle a fish when hooked. Furthermore, they have been under the impression that whitefish almost totally lack any gamy or sporting qualities, such as trout, bass, pike, and other varieties possess. So, why bother with whitefish?

Still another factor that has contributed to the singular position whitefish hold is the confusion they cause in identification. Many anglers haven't an accurate idea of what the common whitefish looks like. This difficulty may be remedied by close observation of the portrait picture showing an Adirondack whitefish. Notice the small and pointed head, arched back, fairly large scales, adipose fin near the forked tail, and the nearly transparent limber fins. The mouth is small, blunt, and very tender, furnishing the main cause for anglers being unable to hook and land whitefish successfully. The body is elongated and more flat than rounded, and the general coloration is bluish-gray along the back, silvery on the sides, and white below. The color varies according to age, natural food available, and stream bottom conditions.

The Rocky Mountain whitefish is similar in physical appearance, except that it seldom grows to be as long, broad, or heavy as the average eastern member of the family.

Anglers often have trouble in distinguishing the common whitefish from other silvery scaled fish. Mountain herring, smelt, cisco, shad, and various shiners and chubs are frequently believed to be whitefish.

In this respect, the one fish most often mistaken for a whitefish, at least in my experience, is the prolific fallfish or Mohawk chub—also called silver chub and white chub. Time and again people have told me about the whitefish they caught, but from the descriptions, or when I saw the fish, I discovered them to be Mohawk chubs and nothing else.

Examine the illustration of the fallfish and compare it with that of the common whitefish. Aside from differences in the shape of the mouths and fins, and other minor details, the chief means of telling the two

fish apart is by the presence, or absence, of the adipose fin. This fin is a characteristic of the *salmonidae*. The fallfish does not have this extra, small piece of cartilage.

Many sportsmen claim the whitefish can seldom be creeled or boated, and contend that they lack the spirit and combativeness of game species. For the sake of fairness, consider the proven facts of the case.

Since becoming acquainted with whitefish, I have caught hundreds, under every condition, by still-fishing, trolling and casting. Yes, even by casting—a method by which most fishermen maintain the common whitefish positively cannot be captured, and one which, in truth, scarcely anyone has tried with success. Only occasionally will casting produce results, especially dry fly casting on lakes, and then only with the most careful management. Yet it can be done. We'll go into that later. My point here is that since whitefish will seize artificial lures, and require skill in handling, they belong to the game fish class.

I have caught enough trout, bass, pike, and other fish to compare their fighting abilities and habits with those of whitefish, and this experience has satisfied me that whitefish have sufficient pluck, endurance, and craftiness to make angling for them a sporting proposition. While many will come up without a struggle, the majority will start a vigorous resistance that demands extremely careful maneuvering.

Fishermen have not realized how tender the mouth of a whitefish really is, and so have invariably torn the hooks loose by jerking too hard when a fish has grabbed the lure. The tough jaws of northern pike, wall-eyes, bass, and

lake trout call for a strong jerk to set the hooks, but with whitefish this practice assures defeat. Once an angler learns the secret of hooking, playing and landing whitefish, however, he comes to agree that they are tricky "critters" to manage but are ready biters and can generally be brought to net. He will find this out early in his attempts to catch whitefish if he has the patience to discover their peculiarities and will adapt his tackle and methods to their requirements.

So, if on your next trip to the Fulton Chain of Lakes, the Finger Lakes, the Chateaugay Lakes, or Lake Champlain in New York, you decide to try your luck with the common whitefish, put the following tips into action and a successful outcome of the trip will be more assured. Or you might angle for the big Jumbo whitefish of Ontario, Manitoba, and Minnesota waters; or wet your line in the Fish River Chain of Lakes in Maine, Lake Winnepesaukee in New Hampshire, or some other whitefish habitat. Possibly you may seek the Rocky Mountain whitefish in Lakes Pend Oreille, Coeur d'Alene, Big Payette, and some of the river systems of the west. Wherever you go, these suggestions will help you.



Arthur J. Tefft

A fine catch of common whitefish from Piseco Lake in the Adirondacks

If the chief object is to secure a number of whitefish for a tasty meal, than you will still-fish at a baited buoy. Furthermore, you will use hand-lines. If sport is the main incentive, then a limber split-bamboo bait or fly rod will be employed, but you will have to be an expert at delicately handling a tender-mouthed, struggling fish, or you won't have it on the hook long. And if you succeed in netting several good sized specimens in this manner, you'll know there is something to the art of landing whitefish. However, since better control of the situation is usually possible if the hand directly maneuvers the line, more fish can be hauled to the surface by hand-lines than by rods. But the choice is up to you.

Locate the buoy, or anchor, preferably over gravelly

sundown is the best period. The wind should not be blowing hard, for it is difficult then to tell the nibbles of the fish from the jumping of the sinker. Moderate waves, though, help to enliven the bait and prompt the fish to bite. Lower a linen or silk line of around twelve-pound-test, to which is fastened a sinker heavy enough to carry the bait to the bottom and a double-snelled hook of size No. 6, 8, or 10. A small hook, of course, is necessary to fit the diminutive mouth of the whitefish. For bait, use a tiny hunk of skinned sucker, chub, or yellow perch; a piece of fish liver, kernel of corn, bit of salt pork, preserved salmon egg, or angleworm. The sucker meat is best. If a rod outfit is preferred, an eight and one-half foot, five-ounce split-bamboo fly rod, single action reel, and



Above—The author bringing up a whitefish with a hand line

Right—Casting for these fellows is not always successful, but this capture by the rod weighed a pound and a half!



The author proves his claim that the common whitefish belongs in the game fish class because he will seize artificial lures and requires deft skill in handling

or sandy bottom; otherwise over rocks, but never mud. Lake fishing in the spring is done in from thirty to fifty feet of water, and in the summer at a depth of from fifty to one hundred or more feet. Around this buoy scatter a moderate amount of canned sweet corn, cooked cracked corn, boiled rice, or skinned pieces of suckers and chubs, to attract the whitefish at regular intervals. After the buoy has been baited for two or three days, and the fish are accustomed to coming for their prepared lunch, then give a smaller baiting each evening after you have quit fishing. Over-baiting will cause the "food" to spoil and the fish to shun the spot. Now, with the buoy in operation, you are ready to tie up the boat and commence fishing.

Although whitefish will bite in early morning, and sometimes during the day, from late afternoon until

enamed silk line, with snelled hook, sinker, and bait, will be suitable and lend plenty of sport.

With the hook dangling a foot or two from the bottom, quietly await the first nibble. If none is forthcoming within a short time, raise and lower the line a few inches—"jiggling" it—to create a more animated appearance of the bait. This often produces results. When a whitefish nibbles, start retrieving line after the second or third touch, doing so at once without exerting added pressure to set the hook. Sometimes a slight jerk is needed, but only if the point of the hook has not penetrated the bait or the fish has not grabbed firmly. Bring your victim up slowly and steadily. In most cases, this is the key to success in landing whitefish. A rapid, excited retrieve nearly always courts failure. (Continuing on page 284)

WOODLAND PORTRAITS

By HUGH SPENCER

Photography by the Author

WE USED to thrill at the adventures of Martin Johnson hunting wild lions in the heart of Africa with his camera, or "Bill" Finley, disguised as a goat, pursuing the nimble mountain goat over crag and precipice of the Rocky Mountains in his attempts to photograph the shy beast. In our hearts we longed for similar opportunities and experiences without realizing that there was plenty of material right in our own back-yard for many camera adventures that were not lacking in excitement and even danger.

Let any camera enthusiast seeking a few hair-raising thrills knock at the door of Madam Vespa, the wasp, and ask permission to take a few pictures of her home and children. I have no doubt that he will soon be convinced that Simba is a tame pussy cat compared to Madam Vespa and her family. For while the lion might rout an army, the wasp, according to the fable, routed the lion! Yes, let any person seeking high adventure penetrate the forbidden territory of the gentle wasp and seek to bring back pictures of her home life.

In my own dooryard I have always been able to find plenty of fascinating pictorial material. Nature's underworld is a most



Madam Yellow Jacket at her nest home — she is guaranteed to give any invading photographer an exciting time



Canny Gray Squirrel does his best to keep the limb between himself and the camera

interesting field for exploration with a camera and it is a field of inexhaustible possibilities. Insects not only outnumber all other living creatures but also surpass them in variety. The spider is another creature whose ways of life and feats of engineering open up a vast field of exploration for the enterprising photographer. There are also frogs, toads and innumerable mice, moles, chipmunks and squirrels in far greater abundance than we suspect until we begin to search for them. Here, again, the difficulty of photographing such subjects adds no little zest to the sport of camera hunting.

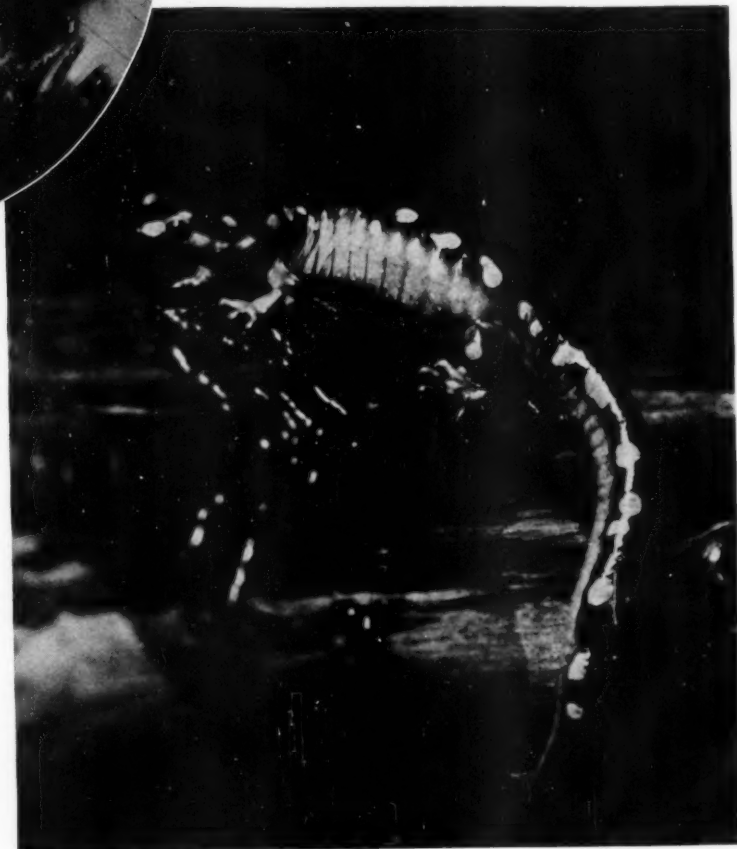
AMERICAN FORESTS

Micky Whitefoot—
with his great eyes
—makes a fine sub-
ject for a woodland
portrait, peeping
from his knothole



A "Spring Peeper" (left) pipes his merry tune from his hideout in the moss and leaves

A lucky flashlight shot caught this Spotted Salamander (below) — truly an underworld character, — a dweller in dark places



If we seek larger "game" there are wild rabbits, woodchucks and skunks, if not in every back-yard at least on the outskirts of almost every town and village. I have had them all at one time or another here in my backyard studio. And if you do not crave an adventure with the wasps try one with the skunks!

Birds too invite the camera hunter but they have been rather overdone and I am going to limit this article to what I like to call Nature's underworld, little creatures that live mostly on or under the ground.

The Johnsons had the whole of Africa for their studio but I am content with the four acres which we call our "Briarpatch" and which consists of woodland, field and swamp. The sitters that come to my studio form a miscellaneous and varied procession. They come, not by appointment, but happen in by chance or are lured by

tempting bait. Some may even be dragged there in nets or traps. Some come by air, others by water or by subway. They come crawling, hopping, flying, running or wiggling.

Let no one get the idea that the making of woodland

take their own pictures when they nibble at baits. Most satisfactory is the method of first making friends with the creatures, until, having won their confidence it is possible to make the sitting under favorable conditions of light and background. Most of the illustrations accompanying this article were made in this way. It doesn't work with all subjects.

If you approach a frog sitting on his lily leaf and attempt to set up your camera you will, no doubt, find that he has a very retiring disposition and that he will vanish into the deepest mud that he can find and remain there until you have departed. But if he becomes accustomed to seeing you day after day you will soon be able to approach close enough to scratch his back and take all the pictures you want. This method is expensive so far as time is concerned and I have found it easier to keep my frogs in captivity for a few days where they soon become accustomed to being handled and looked at and it is then a simple matter to "pose" them in any desired position, natural or un-natural.

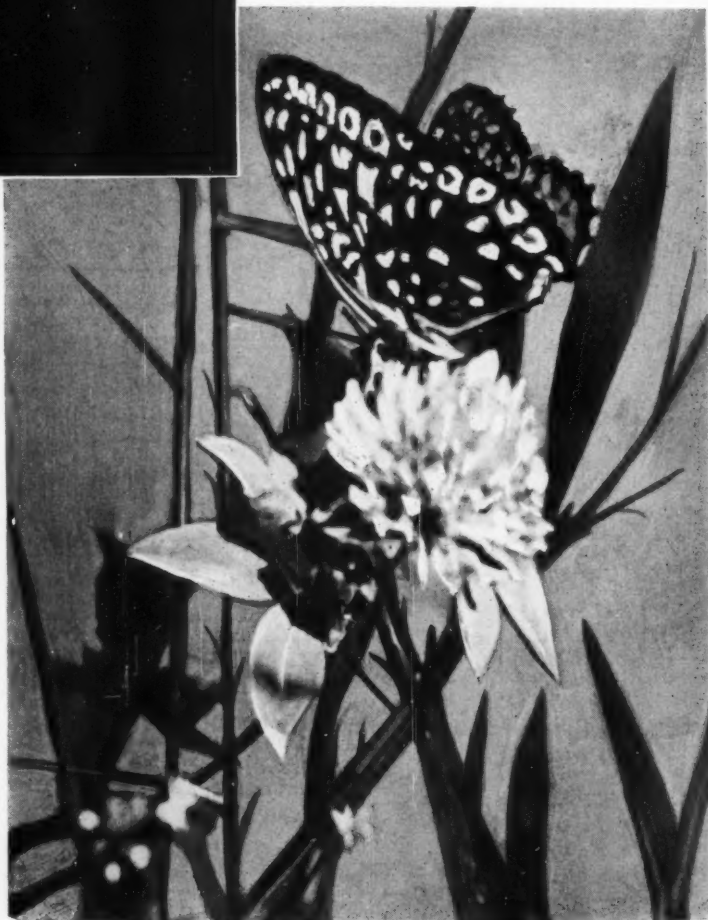
The little tree frogs are friendly in disposition as well as most amusing and decorative, and make excellent subjects for one's camera. If frogs are kept in captivity it should be remembered that they require abundant moisture and that they live upon insects which they eat. (Continuing on page 283)



The pale green Luna Moth — lovely creature of the night, is not a difficult subject while the contrary is true of the Silver-spot Butterfly (right), — creature of sunlight and flowers, which required patient stalking to photograph, as it fluttered from flower to flower

portraits is an easy matter. Even when it is done at or near home, good portraits are achieved only as the result of careful planning, infinite patience, a full understanding of the habits and characteristics of the subject as well as in the manipulation of equipment and materials, and, in many cases, require days of waiting for favorable conditions. The accidental good nature picture is one of the rarest things in the world.

There are many ways of hunting wild animals with a camera: One may take a camera under his arm and tramp through wood and field "shooting" at whatever wild life crosses his path or he may lie concealed in a blind with camera set ready to snap any unsuspecting subjects that come within range. Or cameras may be set with traps and strings by which our wild friends





Always an interesting subject, the Box Turtle wends his deliberate way along the trail

A shot like this of "Molly Cottontail" repays many hours of stalking with the camera



CONFERENCE URGES DEMOCRATIC PROCESS IN SHAPING NATIONAL FOREST POLICY



Photo by Stoffel

Greater Public Cooperation Held Key to Future
of Forest Lands As Conservationists Gather in
Virginia for 63rd Annual Meeting of The
American Forestry Association

By ERLE KAUFFMAN

President James G. K. McClure, Jr.,
opens the Sixty-third Annual Meeting

DECLARING that the future of forestry in the United States depends largely on the proper management of lands in private ownership, The American Forestry Association, at its 63rd Annual Meeting at Old Point Comfort, Virginia, May 5, 6 and 7, called upon state and federal agencies for greater aid and more effective cooperation in making such management possible.

To this end, the Association, by resolution, urged increased educational effort as to the importance and practicability of forest management; greater participation by the Federal Government in cooperative forest fire protection and in the protection of forests from insects and disease; strengthening of governmental forest research activities; and management by appropriate public agencies of privately owned lands under a coop-

erative arrangement that will safeguard both public and private interests. In connection with these recommendations, the Association called upon Congress to give prompt approval of the President's proposal for a joint

congressional inquiry into ways and means of solving the urgent forest problems facing the country.

In a setting of the beauty and history that belongs to Colonial Virginia, this 63rd conference of the Association will undoubtedly go on record as one of the most productive in the last quarter century. Not only did it bring into sharp focus the most debated forestry issue of the day — public regulation of private forest lands — but it brought government and industry closer together in a cooperative endeavor to lay the foundations for its solution. The extent to which it succeeded may be found

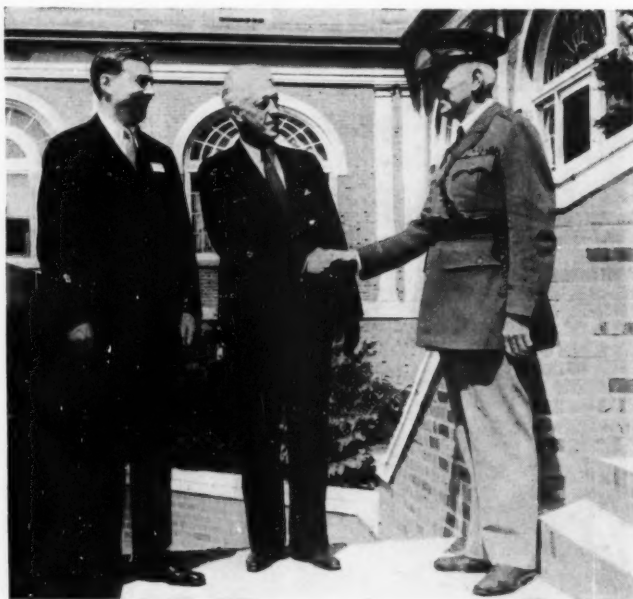


Photo by Stoffel

President McClure and F. A. Silcox, Chief Forester of the United States (center), being welcomed by Brigadier General John J. Gulick, Commander of Fortress Monroe



Photos by Devereux Butcher

Above—the Governor's Palace. Special guides showed members and delegates, in groups of twenty-five, the restoration features of old Williamsburg.

In Circle—Entering the famous Raleigh Tavern, where much early American history was written

At Left — on Jamestown Island, seat of colonial history in Virginia. Here B. F. Flickinger, superintendent of Colonial National Historical Park, outlined the plans of restoration



in the tone of some of the keynote addresses by representatives of both government and industry.

"The most precious thing to be preserved is the democratic process," said F. A. Silcox, Chief of the United States Forest Service, "and this can be achieved, in arriving at a national forest policy, by starting at the bottom and working toward the top. By this I mean, more specifically, starting with the forest land owners themselves, and working up through the counties, and states, and the Federal Government, cooperating all the way."

Colonel W. B. Greeley, secretary-manager of the West Coast Lumbermen's Association, declared that while the forest industry does not want to be regulated any more than it has to be, it is not afraid of the idea of regulation along democratic lines, or from the bottom upward. "However," he told the conference, "the more we can accomplish by cooperation the better off we will be."

Speaking for state government, Governor Olin D.

Johnston of South Carolina, in a paper read by H. A. Smith, state forester, expressed his conviction that regulation by government will not be necessary if industry can agree with itself that a sound conservation policy is necessary in the utilization of timber resources. "Self-imposed regulation should and can answer the problem," he said.

Karl A. Swenning, member of the Executive Committee of the American Pulpwood Association, pointed out that pulpwood operators in the South have already set up self-imposed regulations and will carry out a broad conservation program in cooperation with other forest industries. Julian F. McGowin, of Chapman, Alabama, associated with the W. T. Smith Lumber Company, declared that forest fire protection, fair taxation, and some security for forest ownership "would contribute vastly more to the cause of conservation than any regulation that could be devised," and asked greater federal and

state participation in solving these problems for both industry and land owners.

Samuel T. Dana, dean of the School of Forestry and Conservation, University of Michigan, warned the conference that public regulation of any type "is only one, and probably not the most important, of the many measures necessary to improve the management of forest lands so as to safeguard the dual interests of their owners and of the general public." Some of these measures, in such fields as taxation, credit, protection, acquisition, research and education, he pointed out, require greater state and federal cooperation.

Picturing a new awakening of conservation in the United States, James G. K. McClure, Jr., president of The American Forestry Association, in his opening address, called for "a tolerant, impartial, non-political spirit which will enable us to develop national leadership

in guiding this new interest to a still greater fight to preserve and develop the natural resources of the United States."

Interest in the preservation of forests, in the conservation of natural resources, and in the development of wildlife is welling up all over the country, he said. "During the past five years two new and powerful impulses have swept the conservation movement on like a river in flood—a river which has overflowed the banks of its old channels and spread far into new fields of endeavor. These two impulses are, first, the sympathetic attitude and leadership of President Franklin D. Roosevelt and, second, the vast sums of federal emergency money made available for work relief.

"We of The American Forestry Association view this awakening with keen gratification. We are glad to have had a part in it. At the same time we recognize that its

Dismal Swamp as it appeared to its conservation visitors — displaying a few specimens of its forest



Boarding cars on a logging railroad for the visit to famous Dismal Swamp—when the members were the guests of Mr. P. R. Camp, a director of the Association, and which was one of the highlights of the meeting

very magnitude and its diffused parts set a new challenge for us—the challenge of fair appraisal and fair emphasis upon those conservation measures which in the years ahead give promise of contributing most to human welfare and progress. As an organization, our purpose always has been and must continue to be not to ballyhoo conservation with irresponsible enthusiasm, but to help guide public thought and action into those conservation channels that will achieve the fullest possible use of our natural resources consistent with their permanent preservation and the national welfare."

One of the main objectives ahead, said Mr. McClure, is to put private timber growing on a sound financial basis. "On many sides during the last few years, the private timber owner has been the 'big, bad wolf' of the story, when, as a matter of plain fact, our government agencies—particularly our county and state agencies—have forced the private owner into the practices which are criticized and which the timber owner dislikes as much as do his critics.

"The private timber owner has not had proper protection from fire, with the result that he has been driven to cut the timber and get out before fire brought ruin. Furthermore, counties and states have in operation a tax

system which, in many instances, almost forces the premature cutting of timber. The growing timber on many acres has been taxed over again every year until the only way to escape has been to cut it. On the other hand, when the Federal Government has taken over great tracts of forest land, it has immediately protected this land from fire, at the public expense, and it has removed the land from taxation. Should the private owner be given approximately these same advantages—that is, should his land be protected from fire, and should a tax system be worked out for timber which would encourage the planting and growing of timber—there is no doubt but that we would see a tremendous awakening of interest and a very constructive use of great areas of forest land.”

President McClure suggested



Photos by Devereux Butcher



Those attending the conference heard much about pulpwood and its place in the future of the South. Here a group is inspecting at first hand one of the great pulp mills — the mill on the property of the Chesapeake-Camp Corporation at Franklin, Virginia

that the growing of timber can be encouraged if the annual tax is lightened and the balance of the tax paid at the time the timber is marketed. “County governments, however, are supported by the land tax and cannot afford either to lighten the tax or wait indefinitely for a yield tax. It would seem, therefore, that here is a real opportunity for the Federal Government to appropriate a rotating fund which could be advanced to counties or states and repaid when the yield tax began to come in. It would bridge the gap which is always working against the commercial growing of timber.”

In the field of forest fire protection, Mr. McClure not only called for a greater government program under the Clarke-McNary Act, but advocated a system of federal insurance of forest lands.

On the subject of public regulation of private forest lands, Mr. McClure said: “While many activities of the government can be questioned because of their invasion of fields properly and better managed by private indus-

try, there can be no doubt that the forest interests of America are very properly the special interest of government, and that aid should be given to the private owner which will enable him to engage in the best kind of forest practices. Whatever public regulation is necessary should be so planned that local interests are represented and responsibility be delegated to local boards. It is of great importance that private owners be given the opportunity for investment and management that will call forth the best talents and abilities of private citizens of America.”

Among other conservation measures needing the support and guidance of the Association and other conservation agencies, President McClure listed upstream flood control, a broad and expanding program of education, public acquisition of forest land, a continuing and enlarged program of forest research, strengthening of the state forestry movement, creation of county and municipal forests, wise development of forest recreation and the protection and restoration of wildlife.

Looking at the future of the Civilian Conservation Corps, he said: "The Civilian Conservation Corps has done a fine job for conservation. However, from the point of view of conservation objectives, the field of activity of the CCC should be clearly defined so that it would be a conservation agency and not subject to calls for odds and ends of projects of lesser value. Without some definite policy in respect to projects in the field of conservation, the future of the Corps as a conservation agency seems clouded with uncertainty. The American Forestry Association has been squarely behind the CCC since its inception and it can continue to be behind it only so long as its objectives are definitely set out and defined as conservation activities. There is so much to be done along lines of conservation proper that the Corps could properly be made a permanent agency for the development of conservation in the United States."

President McClure also called for a clear definition of the functions and fields of each conservation bureau or agency of the Federal Government as "the practical way" to end friction and inter-bureau warfare between conservation agencies. "One cannot but feel," he said, "that in the continual fighting between the Forest Service and the Park Service we are heading toward a loss of clear distinction between the two systems and the breakdown in the economic services of the forests and the principle of complete and non-commercial preservation of National Park resources."

In conclusion he said: "During the last decade there has been a very noticeable change in the viewpoint of private owners of timberlands. This increased sense of responsibility is one of the important facts for the future of conservation. Given the proper help and encouragement by government agencies in the nature of fire control, tax adjustment and education, we will see the greatest renaissance of improved forest practices that this country has ever witnessed."

Presenting a graphic picture of the social and economic aspects of the development of the pulpwood industry in the South, Governor Olin D. Johnston of South Carolina, in a paper read by H. A. Smith, state forester, threw down a challenge to both industry and government with the warning that the people of the South, now fully awake to the value of their forest resource, demand a sound conservation policy in its utilization.

"Forty-four pulp mills with an annual capacity of 3,058,000 cords of wood present a real asset to the people of the South," he declared, "but at the same time they dramatically call attention to the fact that no asset is without its liability. The South, for instance, cannot continue to remove, under the present program, the production of 9,000,000 acres of forest land for one industry alone without creating some form of social and economic disturbance. It is evident, therefore, that with the advent of the pulp mills, additional steps must be taken if we are to avert the policy of devastation that has characterized our forest industries in the past. The people of the South are awake to this fact and they cannot and will not see their forest resource destroyed."

This devastation can be avoided, the Governor pointed out, by keeping forest lands productive. "The forest lands of the South are capable of producing more than three times what they are producing today. In reality this is the only step that needs to be taken in order to stabilize industry and to insure new ones. All other steps are supplementary to the increasing of our production."

Responsibility for increasing forest production in the South is three-fold, the Governor declared. "First and foremost is the responsibility upon the land owner. It

is his responsibility to sell only such material as is representative of the growth on his particular tract. It is his responsibility to see that his areas are not denuded, that fire is kept out of his property, that grazing cattle is restricted and that forest management principles are applied. The responsibility of industry—not upon the pulpmills alone, but upon all forest industries—is to adopt within each industry reasonable cutting practice rules, to see that these rules are enforced, to see that a fair price is paid for their products and to correlate these activities with the activities of other industries. Industry must not set up a program that considers only the liquidation of their investment. Industry must recognize the social and economic welfare of the community."

The responsibility of government—county, state and national—is to contribute to such educational and service measures as may be necessary in order to guarantee the adequate handling of forest lands, he said. "Government should contribute more substantially than in the past to forest fire control, to a program that contemplates the establishment of state forests for demonstration purposes and for purposes of research. Government should participate in a program of the utilization of those vast areas of sub-marginal lands throughout the entire South upon which timber represents the financially most valuable crop, and the utilization of those areas for the production of forest products."

"But the activities of government cannot stop here. Government is the safeguard of the people. There can be but one fundamental controlling fact before government. Forest lands must be kept productive! There is no such thing as the regulation of a pulpmill nor a sawmill. Regulation in the final analysis must be concerned with the forest crop itself, and the land upon which it stands as well as the owner of that land. Regulation in the final analysis must tell the land owner what to do. But regulation will not be necessary if industry can agree with itself that something really needs to be done. Self-imposed regulations should and can answer the problem, with adequate assistance from government. But if industry fails to adopt these self-regulation measures, if industry fails to act, then government must step into the picture."

"Visualize if you can the millions of acres of forest lands the South interspersed with farms in many cases of doubtful quality as to soil. Visualize the vast areas of desolation, of erosion, of unpainted homes, unesthetic surroundings and low educational standards. Visualize the vast quantities of unskilled labor, the low income, the low purchasing power. Consider then the potentialities of that vast domain of forest lands—the long growing season, the abundant rainfall, the prolific fast growing timber species, its proximity to markets."

"Then realize that within that area can be produced under a reasonable system of forest protection and management all the raw material eastern America needs today. And with that production consider that there must come increased jobs, increased payrolls, stabilized land values, permanent homes and industry. Without that production we must watch our present industries disappear, we must lose the supplementary labor so important to our small farms, we must see a continuation of low income for our rural people, our social structure continue at its low level."

"Then raise again the question as to the social and economic aspect of the development of pulpwood and other forest industries in the South, and it becomes quite clear that social and economic development depends to a very large degree upon wise (Continuing on page 270)

EDITORIAL



REGULATION OPENLY ARRIVED AT

The sixty-third annual meeting of The American Forestry Association, held at Old Point Comfort, Virginia, last month, was notable in many respects, not the least of which was the afternoon discussion of the subject of public regulation of private forest operations. Characterized by fairness, sincerity and friendliness on the part of those who took part, the discussion was a highly intelligent and pointed one. The speakers avoided detail and emotionalism and addressed themselves directly to the major aspects of the public regulation issue. When all had been said, a common objective stood clear—that of preserving private initiative in the ownership and management of forest land and of making it responsive to public needs for productive forests and permanent industry. Differences centered around methods of attaining this objective and even here the groups did not appear as widely apart as generally believed.

Representatives of industry, as was to be expected, questioned federal regulation, holding that because of the diversity of forest ownership and the variety of operating problems with which individual owners are confronted, it would be ineffectual both as a panacea of present conditions and as an incentive to private timber growing. They held that public regulation should be the natural outgrowth of experience in solving local forest problems and should be called into play when necessary through state rather than federal agencies. The point was particularly stressed that until more adequate public aid in respect to such questions as fire protection and taxation is extended forest owners, public regulation will tend to deter private timber growing and lead to public ownership.

Colonel Greeley, speaking for the lumber interests of the Pacific Northwest, pointed out that in that region a degree of regulation or compulsory control exercised by the states is already in effect and has come about in response to demand by forest owners themselves after experience in dealing with the problem of forest fire. At almost every session of the state legislatures, he said, an extension of forest regulations for fire prevention had been presented by the timber owners themselves and he prophesied that they will, as experience warrants, request their legislatures to put into effect methods of forest practice. This is the type of regulation, he asserted, that naturally grows out of experience and squares with the three-fold interest of private

ownership, private initiative and public welfare.

In opening the discussion and in answering questions later, Chief Forester Silcox, whose recent advocacy of public regulation has brought the question to an issue, clarified his position on a number of points. He left no doubt that he believes public control of private operations is necessary to underwrite communities with some degree of stability and that if industry or regulation cannot accomplish this, public ownership will have to be resorted to. He made clear that he has in mind a type of regulation that is formulated in the counties to meet local conditions and follows "the elected line" upward to exercise state or federal control as needed.

"The means of attaining our goal is much more important than the end," he declared. "The thing to be preserved is the democratic process. The elected line must be kept perfectly clear. By working from agreements openly arrived at, rules must be set up with an administrative authority to execute them. This authority, whether it be state or federal, will exercise the will of the group subject at all times to the elected line. I, personally, am opposed to both appointed and self-appointed boards. The states can handle the intrastate problems but there must be a combined plan between the states and the Federal Government to handle the interstate problem. It is my opinion that such a plan can be worked out within the present constitutional structure."

Mr. Silcox said he shared the belief that a larger degree of public aid should be extended timber owners in meeting taxation, forest fire and other problems and that personally he is willing to advocate that the Federal Government provide fifty per cent of the cost of adequate forest protection. He likewise expressed a desire to work out the private forestry question with those concerned and said any plan of regulation proposed would be submitted to interested groups for criticism.

While the discussion did not reconcile all viewpoints or reach agreements, it nevertheless served a highly useful end in clarifying attitudes and in bringing into sharp relief the more important elements of the public regulation question. It has, we hope, pointed the way to reducing the question to concrete terms and proposals through the democratic processes of frank and friendly conferences and, in the words of Mr. Silcox, agreements openly arrived at.



JACK PINE

Pinus banksiana Lambert

BY G. H. COLLINGWOOD



Jack pine frequently attains heights of sixty feet or more, and young trees usually carry branches well down to the ground

TYPICAL of light sandy soils and the heavy snow country of the north, Jack pine grows throughout northern New England, northeastern New York, the greater part of the Lake States, and south as far as the Illinois shores of Lake Michigan. In British Columbia the range lacks scarcely three hundred miles of being transeontinental, extending from the southern shores of Hudson Bay to the upper waters of the Mackenzie River. Approaching within one and a half degrees of the Arctic Circle, it is the most northern of all American pines. The range reaches some 1,600 miles to the south, and the spread from east to west is 2,500 miles.

Generally considered an inferior tree, as implied by the name "Jack," it is scrubby and dwarfed on its outer limits of distribution, but under favorable conditions of soil and climate attains heights of twenty-five to sixty feet and breast-high diameters of eight to twenty inches. Occasional trees reach heights of seventy-five to ninety feet and are two feet in diameter.

Barren, sandy or rocky land at elevations from 100 feet to 1,200 feet above sea level are its usual habitat, but the largest trees develop on moist soils of good quality. Jack pine is given little consideration in New England, but it is assuming increasing importance in the Lake States, and reaches its largest size on the sandy barrens northwest of Lake Winnipeg in the provinces of Manitoba and Saskatchewan.

Jack pine is essentially a pioneering tree in that it follows closely after lumbering operations and fires to provide shelter for more desirable species that may follow. During the first twenty to twenty-five years, it grows faster than either red pine or white pine, but a few years later these species will overtake it and dominate the stand. Open grown trees six to fifteen inches in diameter may be twenty-five to eighty-five years old, while trees growing in dense stands may take seventy-five years to attain a diameter of six inches. Naturally shortlived, the oldest Jack pine trees do not exceed 125 to 150 years, and few stands which have been lumbered exceed 110 years in age.

Botanists classify Jack pine with the twenty-four hard, pitch or "yellow" pines, which grow throughout the country, and until 1905 was known as *Pinus divaricata*. The stubby, flat, grayish green needles, held two in a cluster, are among the shortest of the entire pine group. They vary from less than an inch to an inch and a half in length, are scanty and somewhat clustered at the ends of the twigs and remain two or three seasons before dropping.

After the trees are four to eight years old, crowded clusters of yellow, pollen-bearing

cone-like blossoms appear in the early spring on the ends of the past season's growth, while the upper branches of the same tree carry clusters of dark, purple pistillate flowers. After fertilization the pistillate ones develop into lopsided cones incurved like a ram's horn and about one to two inches long, by a half inch to an inch in diameter. These ripen during September of the second season. Pressed closely against the stem or sometimes growing more or less at right angles to it, these light, clay-brown cones may remain attached and closed for twenty-five years or longer. They open irregularly to release some of the small, brown-winged, blackish seeds which drift before the wind for long distances. The unusual capacity of this tree to retain its seeds and liberate them during warm weather or after a fire, and the fact that many of the seed which land on open soil grow to seedling or sapling stage, frequently causes Jack pine to be the first to reclothe burned land. In fact, Jack pine's greatest usefulness is to clothe poor, sandy, or gravelly land with tree growth and hold the ground for other more desirable species that will follow.

The relatively thin, dull red-brown bark of mature trees is narrowly ridged and furrowed. The irregular main vertical ridges are connected by smaller lateral ones.

Taken as a whole the tree is easily identified by its short leaves which are always in pairs, its persistent curved cones, and by its many crooked branches.

Jack pine is of increasing commercial importance. There are about 3,000,000 acres of jack pine in the three Lake States with approximately 2,500,000,000 board feet and 6,000,000 cords of standing timber. The brownish-yellow heartwood, surrounded by a layer of creamy sapwood, varies in texture and weighs twenty-nine to thirty pounds to the cubic foot when air dry. It lacks strength, is brittle, and decays rapidly when left in contact with the soil. Clear lumber resembles that of red pine, and is so marketed, but it is usually low grade and knotty.

Used locally for fuel and rough lumber, there are increasing demands for its use as pulpwood, packing cases, slack cooperage, mine timbers, posts, and light traffic railroad ties.

Jack pine has few enemies other than fire and from this it reseeds itself with remarkable ability. While not satisfactory as a street or shade tree, the peculiar green of its foliage makes it desired for some ornamental purposes. Recently it has been used for forest plantings as a means of restoring growth on poor sandy lands, and has succeeded on the sandy soils of northwestern Nebraska.

First reported by French explorers and early settlers in eastern Canada, it was planted in England as early as 1735. It has, however, proved better adapted to the soil and climate conditions of Germany and Russia than to England.



Short, flat needles borne in pairs cluster toward the end of tough branches, and the lopsided cones may retain their seed for years



The dull red-brown bark consists of narrow, intermeshed ridges of closely pressed scales



Natural range of Jack pine within the United States

THE SIXTY-THIRD ANNUAL MEETING

(Continued from page 266)

conservation of our greatest resource—our forest lands. I believe that I speak for the people of South Carolina and of the South when I say that South Carolina and the South will not permit the continuation of that treatment of forest lands which has resulted in such insecure and non-permanent conditions as have resulted from forest policies in the past. We will not see communities built, property values inflated and big payrolls created upon which will be built an unstable commercial program, only to have that program wiped out because of the exhaustion of the raw material due to the selfishness of a few and the short sightedness of many. The people of the South cannot and will not see their forest resource destroyed."

Opening the important panel discussion of public regulation of private forest lands, over which Philip W. Ayres, of New York, a director of The American Forestry Association, presided, Chief Forester Sileox called for a democratic process in laying the foundations for a broader and more effective national forest policy.

"The most precious thing to be preserved is the democratic process," he said, "and this can be achieved, in arriving at a national forest policy, by starting at the bottom and working toward the top. By this I mean, more specifically, starting with the forest-land owners themselves, and working up through the counties, the states, and the Federal Government, cooperating all the way."

Cooperation with private owners was the first thing in a three-point program for a national forest policy set forth by the Chief of the Forest Service. The other two were public regulation of private forest lands, and increased public ownership.

"The National Forests are valuable and worthwhile properties," he said, "but they supply only about four or five per cent of the timber we are using. The pattern of private forest lands, from which some ninety-five per cent of our timber requirements still come, is here, and must be dealt with in a practical and realistic way," he continued. "But to protect private owners who are really trying to meet their responsibilities, as well as to

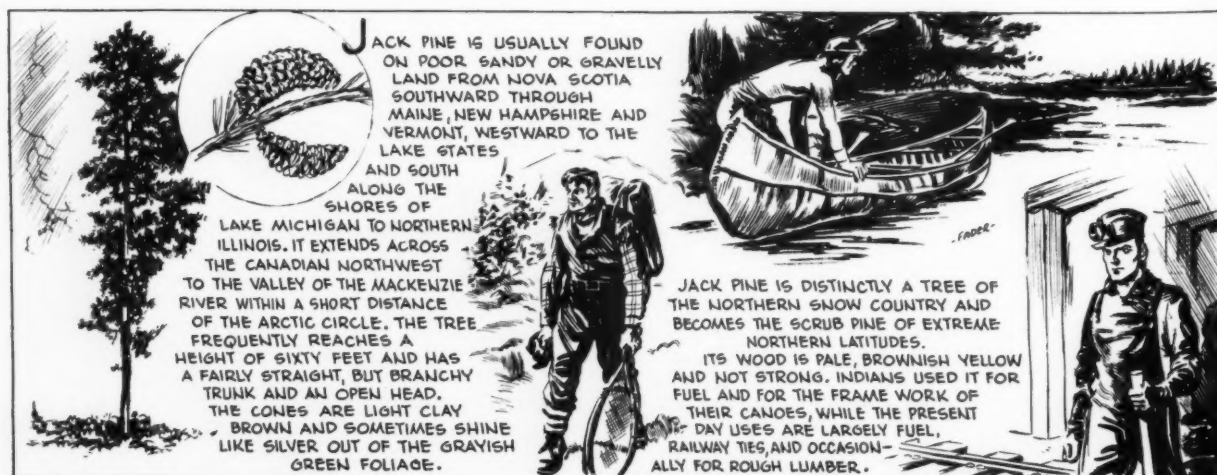
protect the common interests, I am convinced that some form of public regulation is also necessary. And," he warned, "unless private ownership as a whole cooperates, and redeems its responsibilities, public ownership must prevail."

Mr. Sileox pointed to the Lake States and other regions to illustrate that the nation cannot continue to drain its timber and soil resources for conversion into so-called wealth, as such. "There is a definite responsibility to prevent continuation of this type of land use. With one-third of the people on relief, our resources—including our forest lands—must be used to underwrite communities with a greater degree of security and stability."

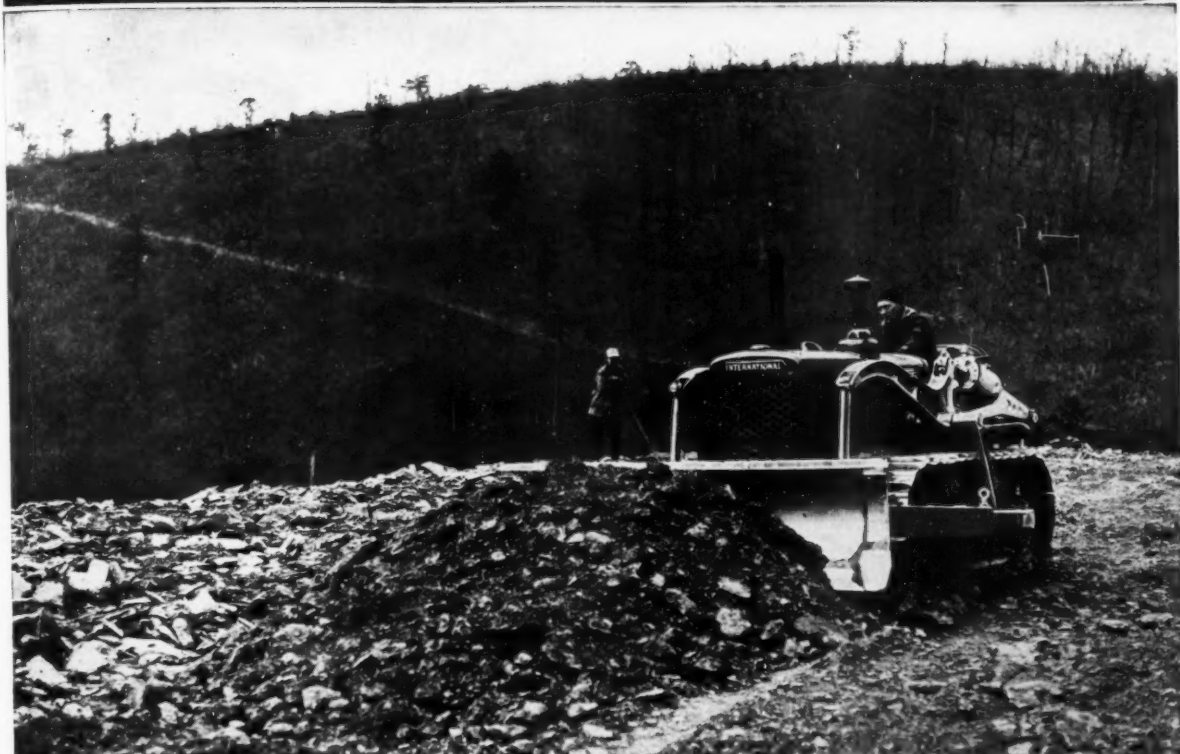
Speaking of regulation, Mr. Sileox said that while some private owners will observe self-imposed rules, there are always others who will not. "In regulating traffic we put a traffic cop at the corner. With orderly regulation, to which no thoughtful person now objects, we and our children are safer, and have a greater sense of freedom in operating our automobiles. In operating private forest lands, just as in operating through traffic, sovereignty lodged in government is now necessary in order to control the group that will not otherwise conform to present-day conditions and needs. And like the automobilist who observes the traffic rules, private owners who properly manage their forest properties will have nothing to fear from regulation within the democratic pattern. The individual private owner is, after all, only transitory in the life of the nation. The liquidation owner and the sustained-yield owner cannot long exist side by side. In the last analysis, forest regulation will affect only those forest properties that are still operated under the liquidation process."

Regulation, he said, whether it be state or federal or a combination of the two, must come as a result of rules openly arrived at, and must reflect the needs of the particular group involved. He advocated a basic setup, around and on which to build in order successfully to meet the different conditions (Continuing on page 280)

TREES AND THEIR USES—No. 32—JACK PINE



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HOUSE PASSES OLYMPIC PARK BILL

On May 16, the House passed the Wallgren bill, H. R. 10024, to establish the Olympic National Park in northwestern Washington, with amendments reducing the area from 927,000 acres to 898,292 acres. The proposed boundaries include 17,400,000,000 board feet of timber which reduces the original bill by over three billion board feet. Of the timber now included in the bill, the committee reported that it is advised that about thirty per cent can be considered as economically available. Eliminated from the House bill, 6,151 acres are privately owned, and earlier provisions empowering the President to add some 61,629 acres of private and state owned land by proclamation was also eliminated. Prospecting under the mining laws of the United States in certain of the northern portions of the park for five years is permitted.

Under section 3, Jefferson County is protected from the loss of forest revenues by a provision that usual income amounting to one-fourth of the revenues of the Olympic National Forest, which are distributable to the counties under existing National Forest laws, shall continue to be distributed in proportion to the total area of each county in the combined National Forest and National Park.

In defending the bill before the House, Chairman DeRouen of the Committee on Public Lands expressed the opinion that the President's message of March 14 is assumed to be a mandate requesting legislation to preserve this area, and declared that the bill has the approval of the Bureau of the Budget together with the endorsement of the Secretaries of the Department of the Interior and of the Department of Agriculture.

NEW FOREST PLAN IN MISSISSIPPI

By increasing the biennial appropriation for forestry from \$30,000 to \$85,000, and by the creation of a committee to study problems of fire protection, conservation, cutting practices, tax adjustments, and other features connected with forestry in Mississippi, the Legislature which adjourned in April opened the way for a greatly expanded program of state forestry.

The committee, consisting of the Lieutenant Governor, the Speaker of the House of Representatives, two State Senators, and two Representatives, after extensive hearings conducted throughout

the State, is preparing a report to be considered at a special session of the Legislature which Governor Hugh White plans to call in June.

The resolution authorizing the creation of the special committee sets forth that with fifty-four per cent of the total area of Mississippi supporting some form of forest growth, and 1,700,000 acres of tax delinquent land, the annual timber growth in the State is no longer equal to the annual consumption of timber by forest industries that pay about thirty million dollars in wages and salaries each year, and produce manufactured products at nearly \$100,000,000.

FIRST LAND USE PROJECT ANNOUNCED

In signing a lease with the State of Connecticut, Secretary Wallace on April 30 completed negotiations for the future management of the first of the Department of Agriculture's submarginal land projects designed for state administration.

Under terms of the lease, the 10,290 acre New London Land Utilization project in eastern Connecticut is turned over to the state for ninety-nine years. Full responsibility for the protection, maintenance and proper use of the area is assumed by the state. The State Commission on Forests and Wildlife is named in the lease as the agent for the State of Connecticut, and will have active charge of the management of the project area on a strict non-profit basis.

"Transfer of this project is tangible evidence of the way in which the Department of Agriculture and the states are cooperating in the development of a better use of land resources," Secretary Wallace said. "The cooperation of local people and of state agencies has been from the start an important element in this successful demonstration of better land use in New England."

Consisting of selected areas of poor land

in which farming has been unsuccessful, the New London Land Utilization project has been developed for public recreation, forestry and wildlife conservation as part of a nationwide program for the more constructive use of land in depressed rural areas.

The State of Connecticut has agreed to maintain all recreational facilities either existing or to be built on the area, to manage the forests on a sustained yield basis, and to promote conservation of wildlife. Income from the project is to be used for its operation, maintenance and future development.

Extensive improvements to increase the public usefulness of this land have been carried out during the past two years by the Resettlement and Farm Security Administrations in cooperation with the Works Progress Administration.

Forest improvement has been carried out on several thousand acres. Extensive means of fire protection have been installed, and 200 acres of cleared land planted to trees. Under the new land use program of the Bureau of Agricultural Economics, an additional 1,000 acres of land is to be acquired.

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Western Timber Lands

FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

After extensive consideration by the subcommittee on Agricultural Appropriations covering the needs for forestry and conservation, the Senate materially increased items for forest fire cooperation and forest acquisition, restored the Budget estimate to Dutch elm disease eradication, and added funds for the work of the Biological Survey when it passed the Agricultural Appropriation bill, H. R. 10238, on May 9.

The Forest Service increase from \$18,614,112 to \$20,370,400 included the much needed addition of \$889,993 to enable the Federal Government to cooperate with the states in forest fire prevention and suppression. This would increase the appropriation from \$1,610,007, as passed by the House on April 19 to \$2,500,000, the full authorization of the Clarke-McNary Act.

An even million dollars was added for the acquisition of lands for National Forests, bringing this item to \$3,000,000 which is \$2,000,000 more than was recommended by the Bureau of the Budget. To this amount is added, under a separate clause, \$325,000 for land additions to the Tahoe National Forest in Nevada and the Great Smoky National Park in Tennessee.

Offsetting these increases, national forest protection and management was reduced from \$11,569,754 to \$11,504,754, and the item giving the Forest Service authority to cooperate with and advise timberland owners in the sustained yield management of their lands was reduced from \$200,000 to \$100,000.

Forest management research was increased from \$638,403 to \$658,403 to allow \$20,000 for special studies in the protection and management of white pine stands.

Another \$25,000 was added for range management investigations to give that work a total of \$250,935; investigations and experiments to determine the influence of natural vegetative cover on water conservation, floods, erosion, and the maintenance of soil fertility were increased by \$50,000 to a total of \$164,152; and investigations in forest economies from \$100,000 to \$121,295.

No mention was made in the committee report or in the discussion on the floor of the Senate to the \$1,200,000 which the Bureau of the Budget had recommended for the Norris-Doxey Cooperative Farm Forestry Act, but which the House eliminated before passing the bill.

By adding \$75,000 to Dutch elm disease eradication work of the Bureau of Entomology and Plant Quarantine, the Budget recommendation of \$378,489 was restored. In addition, \$24,400 was added to the investigational work on forest in-

sects and would permit the continued employment of entomologists and field assistants to determine the relations of insects to the spread of the Dutch elm disease.

An increase from \$2,135,340 to \$3,188,340 will permit the Biological Survey to increase its participation in the work of wildlife restoration, authorized in the Pittman-Robertson Act of September 2, 1937; increase the amount for control of predatory animals and injurious rodents to \$650,000; finance studies of fur resources with \$91,000; and give \$10,000 for the protection of migratory birds.

The entire bill has been referred to a conference committee consisting of five Senators and five Representatives and is expected to be reported back to the two legislative houses before the end of May.

On April 28, the House Committee on Public Lands submitted a report on the Wallgren bill, H. R. 10024, to establish the Olympic National Park, with amendments proposing to reduce the area of the National Park from 927,000 acres to 898,292 acres. Under the newly submitted plan, the park would include a total of 17,400,000 board feet of timber rather than 19,300,000 board feet. Of the amount of standing timber now included in the bill, about thirty per cent is considered as economically loggable. The area eliminated includes 6,151 acres of private land, and provisions empowering the President to add some 61,629 acres of private and state owned land by proclamation have been eliminated. Similarly, the section dealing with mining in the park area has been simplified, and as now written would allow prospecting in certain portions of the park for a period of five years.

A struggle of many years duration was revived on April 28 when Senator Pope of Idaho introduced S. 3925 to authorize construction of a weir or dam at Yellowstone Lake and a tunnel for the diversion of water from the lake to a tributary of the Snake River. This water would be used for irrigation purposes in Idaho, and the proposal opens the way for commercial inroads into one of America's foremost primeval parks.

The creation of the Kings Canyon National Park, comprising about 405,000 acres in California, adjoining the north boundary of Sequoia National Park and including all of the General Grant National Park together with portions of the Sequoia National Forest in Fresno and Tulare Counties, is revived in H.R. 10436, introduced on April 27, 1938, by Representative DeRouen, Chairman of the House Committee on Public Lands. The bill would abolish the General Grant National Park of 2,543 acres and include this in the new park as the General Grant

Grove Section. If passed as now introduced, it would take over some 400,000 acres of the Sequoia National Forest, and a few hundred acres of privately owned lands. Two power reservoir sites in Tehipite Valley and Cedar Grove, which have been sources of vigorous objection to inclusion of this area in a National Park, are outside the boundaries, as is also a storage reservoir site on Pine Flat.

Two bills of far reaching significance to flood control and upstream engineering await action in Congress. By the terms of H.R. 10291, making appropriations for the civil functions of the War Department, and under consideration by a conference committee from the Senate and House, the Department of Agriculture will receive three million dollars for preliminary examinations and surveys, and four million dollars for prosecuting works and measures to retard run-off and water flow, and to prevent soil erosion on the watersheds of flood control projects. These sums together with \$75,000,000 appropriated to the Corps of Army Engineers are under authority of the Copeland Flood Control Act of June 22, 1936.

On May 12, a new flood control bill, H.R. 10618, to amend the basic Copeland Act, was introduced by Representative Whittington of Mississippi. The new bill expands the field of joint activity by the War Department and the Department of Agriculture to nearly every river basin in the United States and by authorizing the Federal Government to pay all construction costs incident to the building of dams, spillways, and levees, together with seventy per cent of all other costs incident to the purchase of land and the relocation of highways and railways, promises greater state cooperation.

An important feature of the new bill authorizes up to \$375,000 a year for the Weather Bureau to make emergency reports on precipitation and to issue flood warnings whenever necessary. In addition, appropriations of \$2,000,000 a year for the next five years are authorized for the construction of necessary works and measures with which to correlate the program of improvement of rivers and other waterways undertaken by the Department of War with the up-stream engineering work and the soil conservation projects of the Department of Agriculture.

Under the terms of this bill, sponsored jointly by Representatives Whittington of Mississippi, Seerost of Ohio, McClellan of Arkansas, and Voorhis of California, the Department of Agriculture and the Corps of Army Engineers may each receive five million dollars for surveys and preliminary studies. The bulk of the \$375,000,000 authorized in H.R. 10618 will be allotted to the major river basins of the country, with a total of \$125,300,000 for reservoirs and local flood protection works in the Ohio Valley, \$54,000,000 for the Denison Reservoir on the Red River in Texas and Oklahoma, \$40,000,000 for flood control improvements in the lower Mississippi, \$25,000,000 in the White River basin for reservoirs, \$11,524,000 in the Connecticut River Valley, \$11,300,000 for the Willamette River Valley in Oregon, \$9,300,000 for the Upper Mississippi River Valley.

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CONSERVATION CALENDAR

Important Bills in Congress With Action
April 13-May 11

BILLS ENACTED

H. J. RES. 627—WOODRUM—Providing an additional appropriation for the Civilian Conservation Corps for the fiscal year ending June 30, 1939. Passed House April 4, 1938. Passed Senate April 19, 1938. Approved April 25, 1938. Public Resolution No. 88.

H. R. 9621—TAYLOR, Colorado—Making appropriations for the Department of Interior for the fiscal year ending June 30, 1939. Passed House March 2, 1938. Passed Senate April 7, 1938. Approved May 9, 1938. Public Law No. 497.

H. J. RES. 504—LUECKE, Michigan—To authorize compacts or agreements between the States bordering on the Great Lakes with respect to fishing in the waters of the Great Lakes, etc. Passed House February 21, 1938. Passed Senate March 25, 1938. Approved April 5, 1938. Public Resolution No. 84.

S. J. RES. 256—MURRAY (H. R. 9444—O'CONNOR)—To amend the Joint Resolution entitled "Joint Resolution making funds available for the control of incipient or emergency outbreaks of insect pests or plant diseases, etc.," approved April 6, 1937. Passed Senate March 25, 1938. Passed House May 2, 1938. Approved May 9, 1938. Public Res. No. 91.

H. R. 6652—FORD, Mississippi—To provide for the administration and maintenance of the Natchez Trace Parkway in Mississippi, Alabama, and Tennessee by the Secretary of the Interior, and for other purposes. Passed House February 2, 1938. Passed Senate May 5, 1938. To President May 10, 1938.

APPROPRIATIONS

H. R. 10238—CANNON, Missouri—Making appropriations for the Department of Agriculture and for the Farm Credit Administration for the fiscal year ending June 30, 1939. Passed House April 19, 1938. Passed Senate amended, May 9, 1938. In Conference May 11, 1938.

FORESTRY

S. CON. RES. 31—MCADOO (H. J. RES. 657—FULMER)—To establish a joint congressional committee to be known as the Joint Committee on Forestry, to study and investigate the present and prospective situation with respect to the forest land of the United States, etc. Introduced April 14, 1938, and referred to the Committee on Agriculture and Forestry.

GOVERNMENTAL FUNCTIONS

H. R. 10456—MEAD—To establish the Civil Service Administration, to ex-

tend the merit system, to extend the Classification Act of 1923. Introduced April 28, 1938. Referred to the Select Committee on Government Organization.

NATIONAL FORESTS

S. 2221—THOMAS, Utah—To facilitate the control of soil erosion and flood damage originating upon lands within the exterior boundaries of the Cache National Forest in the State of Utah. Passed Senate June 28, 1937. Passed House May 2, 1938.

H. R. 7933—SHEPPARD—To facilitate the control of soil erosion and/or flood damage originating upon lands within the exterior boundaries of the San Bernardino and Cleveland National Forests in California. Passed House May 2, 1938. Referred to the Senate Committee on Agriculture and Forestry May 3, 1938.

H. R. 8165—ENGLEBRIGHT (S. 2916—MCADOO)—To add certain lands to the Trinity National Forest in California. Passed House May 2, 1938. Referred to the Senate Committee on Public Lands and Surveys May 3, 1938.

H. R. 9523—PIERCE—To add certain lands to the Ochoco National Forest in Oregon. Passed House May 2, 1938. Referred to the Senate Committee on Public Lands and Surveys May 3, 1938.

NATIONAL PARKS

S. 3925—POPE (H. R. 10489—WHITE, Idaho)—Authorizing the construction of a weir at Yellowstone Lake and a tunnel for the diversion of water from such lake to a tributary of the Snake River. Introduced April 28, 1938. Referred to the Committee on Irrigation and Reclamation.

H. R. 4852—CLUETT (S. 695—COPELAND)—To provide for the creation of the Saratoga National Historical Park in New York. Passed House June 21, 1937. Passed Senate May 5, 1938.

H. R. 7826—DEROUEN—To make available for national park purposes certain lands within the boundaries of the proposed Isle Royale National Park. Passed House January 17, 1938. Passed Senate May 5, 1938.

H. R. 10024—WALLGREN—To establish the Olympic National Park in the State of Washington. Reported with an amendment (Report No. 2247) by the Committee on the Public Lands April 28, 1938.

WATER AND STREAM CONTROL

H. R. 10298—MANSFIELD—Authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. Passed House April 27, 1938. Referred to Senate Committee on Commerce April 28, 1938.

ASK THE FORESTER

Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., Will Be Answered in This Column. . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.

QUESTION: Is there any way we of northern Wisconsin can save our Norway Pines from the deadly *dendroctonus*, pine bark beetle?—E. F. O., Wisconsin.

ANSWER: In the numerous cases observed throughout the northern part of the Lake States where mature Norway or red pine trees have died, it is the opinion that severe drought or over-maturity is the cause of the death, rather than the bark beetles, which in many cases infested the dead trees. These were identified as a species of *Ips*, rather than *Dendroctonus*, and it is doubtful if they are capable of attacking and killing healthy, vigorous trees. The fact that most of the dead trees were in the neighborhood of public camp grounds and resorts, where the soil was severely packed by the presence of people led these authorities to the conclusion that the weakened trees were susceptible to drought injury, and that the attack of the *Ips* bark beetles followed.

Unless original conditions can be restored, only partial control can be accomplished by removing and destroying the infested trees before the new broods of insects mature and emerge.

QUESTION: What can I do to prepare a cross section of a large oak tree, twenty-seven inches in diameter and two inches thick?—R. T., New York.

ANSWER: No process is known which is altogether satisfactory. It is suggested, however, that the section might be satisfactorily seasoned were it to be packed in dry crystalline urea, or carbamide, $\text{CO}(\text{NH}_2)_2$, so there will be about a half inch of the chemical on the upper and lower faces. After remaining several weeks, until the diffusion process is completed, the section should be capable of resisting low relative humidities.

QUESTION: Are violations of the Migratory Bird Treaty Act for illicit traffic of wild ducks for commercial purposes a material factor in reducing our supply of wild fowl?—C. J., Nebraska.

ANSWER: According to Ira N. Gabrielson, Chief of the Biological Survey, they are not. "It is impossible to make an accurate estimate of the number of wild-fowl handled in illicit traffic, but I feel sure that at the present time it is not alarmingly large. Our enforcement facilities have been greatly increased during the past few years and I do not think that any large scale enterprise by poachers and market hunters could escape detection for long," says Mr. Gabrielson. "I should say that the total loss of wild-fowl by reason of this traffic is negligible compared with the numbers legally taken. It is, however, a source of great potential damage and must be closely checked."

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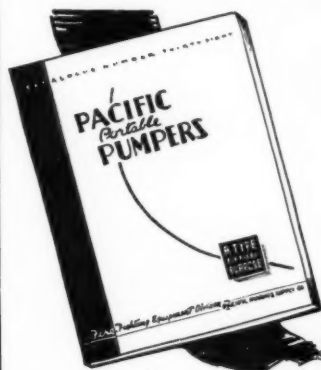


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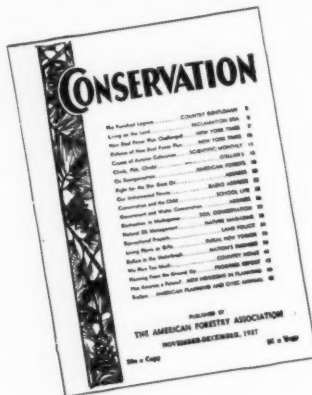
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NEW BOOKS

TEXTBOOK OF DENDROLOGY, by William M. Harlow and Ellwood S. Harrar. Published by the McGraw-Hill Book Company, 330 West 42nd Street, New York City. 527 pages. Illustrated. Price \$4.50.

Of the 1,177 different trees native to the continental United States, Dr. Harlow and Dr. Harrar have singled out more than 300 for special consideration in their Textbook of Dendrology, recently added to McGraw-Hill's authoritative American Forestry Series.

Each tree is given emphasis and space in accordance with its importance, but frequently more attention is given to the genera to which a tree belongs than to the individual. There is merit in this, for after all few can hope to hold the details of each tree in mind, but with a knowledge of the fundamentals of botanical or dendrological arrangement, one can follow the specimen down through a key for accurate identification.

One may use this book as a reference as well as a textbook. Its wider use and greatest contribution to a wide understanding of trees will be as a reference. The botanist will delight in its accuracy, but those who are only generally interested in trees will welcome the clear manner in which the mysteries of technical descriptions are unravelled to reveal the fascinatingly beautiful details that are in leaf and flower.

Not the least important feature of this Textbook of Dendrology are the numerous photographs with which the authors open windows for readers to see details in tree blossoms and buds, as well as distinctions in leaves, fruit, bark, and general tree forms.—G. H. C.

WAYS OF BIRDS, by Thora Stowell. Published by Charles Scribner's Sons, New York. 174 pages, illustrated. Price, \$2.00.

Second volume in the educational series titled *Design of Life*, this book describes the wonder of bird life,—the reasons behind their ways. And it proves beyond dispute that though much has been observed and written about them, there is a wealth of new material always coming to light to reward the discoverer who is faithful in his search. Some of the finest bird photographs of today are reproduced in its generous illustrations—intimate habitat studies of great beauty and thrilling interest.—L. M. C.

FOREST PROTECTION, by Ralph C. Hawley. Published by John Wiley and Sons, Incorporated, New York City. 262 pages. Price \$2.75.

FOREST PROTECTION takes on a new and broader meaning in Professor Hawley's recent book with those words for a title. Not only is man charged but he is con-

victed as the primary source of injury to the forest. Accordingly, the protection of our forests, as set forth in this book, is essentially a matter of human relationships. This is generally recognized in the case of fire, vandalism, excessive grazing, and injuries from poisonous fumes and factory wastes. The author goes further, however, and shows a direct human relationship to the destructive action of many insects, fungi, and forms of wildlife.

Designed as a college text book on all phases of forest protection, it may well prove a handbook for those responsible for the public relationships of a forest owner or administrator. Foresters will give special attention to the chapters on suppression and pre-suppression of forest fires, with suggestions for control, and the preparation of fire plans. These promise to be especially stimulating.—G. H. C.

BEAVER PIONEERS, by Wendell and Lucie Chapman. Published by Charles Scribner's Sons, New York City. 153 pages, illus. Price \$2.00.

Here is an engagingly written narrative study of beaver which will appeal to juvenile and adult alike. The soft furred rodents have been photographed in their natural environment and their habits woven into an interesting tale with Natchtail, Blackface, and Slaps as the leading performers.

The skill with which Wendell and Lucie Chapman, who are well known naturalist-photographers, have combined science and romance is commendable, and their photographs of beaver and other wild animals are achievements of real worth.—D. D.

LAWS RELATING TO FORESTRY, GAME CONSERVATION, FLOOD CONTROL, AND RELATED SUBJECTS, compiled by Elmer A. Lewis, Superintendent of Document Room, House of Representatives. Published by the United States Government Printing Office, and available from the Superintendent of Documents, Washington, D. C., at ten cents per copy.

"Laws Relating to Forestry, Game Conservation, Flood Control, and Related Subjects, beginning with the Weeks Act of March 1, 1911, and carrying through to the Rural Electrification Administration Act of May 20, 1936, have been compiled and assembled by Elmer A. Lewis, Superintendent of the House Document Room in the United States Capitol and can be purchased from the Superintendent of Documents, Washington, D. C., at ten cents each. This will prove helpful to all who desire specific reference to the fundamental conservation acts of the past several years.—G. H. C.

RESOLUTIONS ADOPTED BY ASSOCIATION AT 63rd ANNUAL MEETING

Believing that the future of forestry in the United States depends largely on the proper handling of lands in private ownership, The American Forestry Association notes with approval the increased interest of private owners in improved management and urges more effective cooperation on the part of state and federal agencies in making such management feasible. Among the many important means to this end, it particularly recommends:

1. Increased educational effort as to the importance and practicability of forestry, including liberal appropriations under the Farm-Forestry (Norris-Doxey) Act.

2. Increase in the authorization for cooperative forest fire protection under the Clarke-McNary Act to \$9,000,000, so as to permit federal participation up to fifty per cent of the total estimated cost of adequate protection.

3. Immediate appropriation of the full \$2,500,000 authorized under the present Act, with additional appropriations under the proposed amendment as the states meet their share of the joint responsibility.

4. More adequate provision both in emergency and regular appropriations for the protection of forests from insect and disease pests, such as the Dutch elm disease, spruce sawfly, beech scale, necrotic canker, and bark beetles.

5. Strengthening of the forest research activities of the Federal Government through more adequate regular appropriations, particularly for the forest survey and for research in forest economics and forest influences.

6. Management by appropriate public agencies of privately owned lands made available for that purpose by their owners under a cooperative arrangement that will safeguard both public and private interests, and that will serve the dual purpose of providing relief and promoting conservation.

In connection with these recommendations, The American Forestry Association urges upon Congress prompt approval of the President's constructive proposal for a Joint Congressional Inquiry into ways and means of solving the many urgent forest problems by which this country is faced, and offers its cooperation in any

way possible in the conduct of the inquiry.

The Association also wishes to go on record on the following matters:

It opposes vigorously the Pope Bill for the diversion of water by a tunnel within the Yellowstone National Park from Yellowstone Lake to the Snake River as a flagrant violation of the fundamental principle of the preservation of natural conditions in National Parks.

It urges increased appropriations for more adequate protection of the National Parks from fire, insects and disease.

It commends the fine work which the National Park Service is doing in the preservation, restoration, reconstruction and interpretation of the Colonial National Historical Park and other historical sites.

It strongly supports the expansion of forestry and other upstream engineering measures for the control of floods and erosion under the direction of the Secretary of Agriculture in full cooperation with the State Departments of Forestry.

It believes that the entire subject of stream pollution deserves careful study both by public and individual agencies with a view to removing the present threat to fish life and other recreational opportunities from this source.

It calls attention to the importance of wildlife as a forest resource of outstanding esthetic and economic value, and urges that its production receive full consideration with timber and other resources as an objective of forest management.

Finally, the Association wishes to express its cordial thanks to General Gulick and his staff, to the Mariners' Museum, to the owner of Roseland Gardens, to the management of the Hotel Chamberlin, to the Hampton Institute quartet, to Mr. W. R. Brown, to the officers of Colonial Williamsburg, the National Park Service, the Virginia Department of Conservation and Development, the Camp Manufacturing Company, and the Chesapeake-Camp Corporation, and to its Committee on Arrangements for their many courtesies and efficiency in making the 63rd Annual Meeting of the Association so pleasant and profitable an occasion. Signed by S. T. Dana, John Coffman, C. A. Gillett, W. L. Gooch, A. G. T. Moore, H. A. Reynolds, Dana Parkinson, and Joseph Hyde Pratt.



S. T. Dana, of Michigan, Chairman of the Resolutions Committee

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THE SIXTY-THIRD ANNUAL MEETING

(Continued from page 270)

in different states and forest regions. The states, he declared, can best handle intra-state problems, but there must be cooperation between the states, and with the Federal Government, to handle inter-state problems.

"One group of competitors cannot successfully control another group of competitors in the same field. The seeds of failure are inherent in any such setup. Industry must have a hand in writing the rules, and I hope it will be a real and a helpful hand, for Democracy stops when we get a greater flow from the top than from the bottom. We must guard the right of appeal, but there must be sovereignty, and the elective line must be kept clear of the administrative one. Before regulatory measures are considered by Congress," Mr. Silcox added, "the Joint Committee should explore the whole forest problem, and hold public hearings; start at the bottom, and follow the democratic process. As a nation we've shown our ability to do this in other fields, and my belief is that we can and will show the same ability in arriving at a broader, a more effective, and a more constructive national forest policy."

Although endorsing the Chief Forester's democratic pattern for formulating a national forest policy, Colonel W. B. Greeley warned that regulation should not be an aim in itself, that solution of the forest problem lay in greater cooperative action.

"While we should not be afraid of the idea of regulation from the bottom upward," he said, "we do not want forest industry regulated any more than it has to be. The more we can accomplish by cooperation the better off we will be. Regulation should not be an aim in itself. Regulation should be left as the last resort to check what may be called the irreducible minimum among private owners that need it."

Industry recognizes the kind of regulation to which it has been accustomed, Colonel Greeley declared. "For the past forty years the timber owners of Oregon and Washington have been seeking regulation on control and prevention of forest fires. Our own public system grew out of the demand brought before the legislatures of the two states by groups of forest owners who had voluntarily assessed themselves. From that date to the present, there has scarcely been a session of the legislature in Oregon at which the state forester has not presented, with the backing of a substantial group of forest owners, some extension of regulation for the control of forest fires. Last year the State of Washington, following the example of Oregon, placed in the hands of its state forester power to close down every operation in the state at times of great fire hazard.

"This is the sort of regulation industry recognizes—regulation which grows out of

the experience of industry and which is necessary to its welfare. For the past five years the lumber industry of the Northwest has carried out to a very substantial degree the foundation of forest practice adopted under the NRA lumber code, and since carried on voluntarily. It would not surprise me in the least if nothing whatever is done by the Federal Government, to see forest owners requesting their states to put into effect the methods of forest practice that they themselves have been testing for the past five years. This, I hope, conforms with the democratic pattern."

Focusing on government cooperation with industry and timberland owners, Colonel Greeley said: "The Government of the United States has exactly the same interest and the same responsibility toward that one-third of our land which is in timber as it has toward the one-third in agriculture. Therefore, the government should apply to our forest lands the same degree of public aid that it applies to our agricultural lands. The government should go much further than it has already in extending cooperation in forest credits, protection from fire and in meeting the taxation problem."

After reviewing the history and causes of governmental regulation of forest practices in other timber growing nations of the world, Karl A. Swenning questioned the need of such measures in the United States. He said: "One of the first reasons usually given to indicate the need of public regulation is that as a nation we are consuming our forest resources four times as fast as that resource is being reproduced. In the light of the findings of recent forest surveys, there is strong evidence that, as a nation, we are *not* using our forest resource in excess of the rate of growth. Nor are we, under private ownership, annually devastating approximately 850,000 acres of forest land as is claimed. On the basis of forest survey reports for the South, there seems to be every reason to question this. Nor is it without point to observe that in the Copeland Report, prepared by the United States Forest Service, the causes of forest devastation are listed in the following order: First, fire; second, insects; third, disease; and, fourth, unregulated logging.

As another basis for asserting that public control of private forest operations is needed, Mr. Swenning said, it is stated that with but few exceptions, private initiative, of itself, has not succeeded in establishing sustained yield forest management on privately owned forest land. "Admitting that the record of the forest products industries has its pages of black reading, there are, however, too many instances of sound, intelligent and practical forest management within that record to permit the almost complete denial of its existence. The ability of organized forest industry groups to so conduct their woods

operations that the supplies of timber within their operating areas will not be seriously depleted has also been questioned. It is further alleged that while a single group might set its house in order, there would still be such competition between opposing interests for available stumpage that only through outside regulation could the permanency of all interests be assured.

"Had not the Southern Division of the American Pulpwood Association believed that it would not be possible to obtain group action designed to maintain the productivity of the southern pine forests, there would have been no meeting in New Orleans a short year ago and no statement issued of a conservation policy for that industry."

It is inconceivable, Mr. Swenning declared, "that an industry which in three years has invested more than \$200,000,000 in plant and equipment and approximately \$25,000,000 in the acquisition of timber lands should not search every avenue that would enhance the stability of that investment."

"The principle of public regulation of private forest enterprise may be accepted or rejected by those who seriously and with an open mind study our forest problem," he said. "If the theory of regulation is accepted it should be remembered that only through enlightened land ownership can such a program be made effective. There is still a long road to be traveled before the average forest owner is to be convinced that even the simplest forms of forestry can be made to pay. And let it not be forgotten that on the profit motive will depend the success or failure of any plan designed to maintain our forest wealth. Government has the definite responsibility of proving to forest land owners that recommended management systems can pay their way before government can demand regulation. That responsibility has not yet been discharged."

And whether the principle of public regulation of private forest practice is accepted or not, Mr. Swenning declared, any kind of forest management is wasted effort without adequate fire protection. "Yet in the South today there are 113,000,000 acres of unprotected forest land. And the reason? Congress has not seen fit to appropriate the full amount of money specified for cooperative fire protection by the Clarke-McNary Act, and many states are financially unable to raise the funds requisite to the need. Is it not reasonable to ask as to whether or not it is right and logical for the public to demand that private forest lands must be operated for the public benefit when the public has not met its obligation to provide forest protection facilities?"

Security for forest ownership, not federal regulation, is the greatest need in the South, the conference was told by Julian

F. McGowin. "The South's greatest forest problem is protection from fire. Only a small part of the region is under a sufficient system of protection. Where this has been accomplished, it has been a slow, difficult and patient process—a process of gaining the sympathy and cooperation of rural people who are directly responsible for more than three-fourths of the fires. These people have seen forest fires burning all their lives and do not regard them seriously. Beyond this, many of them have a real or imaginary interest in seeing the woods burn to keep down boll weevils, ticks, snakes, and to improve the range for grazing. It is not unusual to find a man who owns forty acres of land and several hundred head of hogs, cattle and sheep which obviously must graze on someone's else land."

A stock law requiring that cattle be kept under fence would be one of the greatest possible contributions to the cause of forestry in the South, he said.

"Taxation as an obstacle to forest management has been the subject of numerous inquiries, and examples of harmful tax laws are easy to find. A solution of the forest tax problem is certainly implied in any consideration of public regulation."

Timber theft, Mr. McGowin declared, is a serious item to many forest owners and the cost of a land patrol is one of the four elements in the cost of growing timber—the others being fire protection, taxation and overhead.

"The continued cutting of small tracts of timber by portable sawmills is pointed out as the chief cause of the destruction of our forests," he told the conference. "Yet, in a competitive market the answer must come from the landowner who sells the timber rather than the sawmill operator who buys it. The AAA, the Federal Land Bank, the Resettlement Administration and other public agencies concerned directly or indirectly with land management have not assumed their share of the responsibility in education or in requiring proper forest management. In the South, agricultural land is being abandoned three times as fast as new land is being cleared for cultivation. We have vast additional areas of marginal land which should be returned to forest growth. Yet, in spite of millions of dollars spent for agricultural purposes, there is not enough to give forest land the bare essential of fire protection."

"Since the present growth in the South already exceeds the demands of the wood using industries," he declared, "it is not difficult to see that extension of fire protection would bring a prompt increase in growth—enough to leave a large margin available for future development."

"Our experience has shown that the mere passage of a law does not insure the results intended. Knowing the attitude of the rural people of the South, it is my firm belief that fire protection, fair taxation, and some security for forest ownership, would contribute vastly more to the cause of conservation than any regulation that could be devised."

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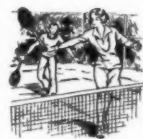
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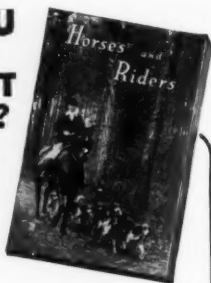
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tions taken by state foresters of the country on the public regulation question was given the conference by F. C. Pederson, state forester of Virginia, and president of the Association of State Foresters. As the result of a recent poll of members of his Association, Mr. Pederson reported as follows:

"Ten of the state foresters replying are in favor of regulation of private forest enterprise at the present time. Sixteen are opposed. However, sixteen favor the adoption of regulatory measures as a last resort after other methods which may be used to aid private forestry fail.

"Five state foresters would continue present efforts to improve the situation without thought of regulatory action for a period of five years. Seven favor deferred action for a period of ten years.

"As to the form of regulation to be adopted if future developments require such action, state foresters made few commitments. One would prohibit clear-cutting except where sufficient reason can be shown for transforming forests into agricultural lands, flooding for reservoir sites, or where land is to be reforested with more valuable species. Another forester stated that fire protection and some simple form of partial cutting regulation would meet the needs of the situation except where special insect and disease conditions were concerned. Another advocated a minimum diameter limit by species and adequate fire protection.

"State foresters are practically unanimous in their opinion that if regulation must be adopted, the situation should be controlled by state legislation or by local action, but that federal legislation and cooperation would also be needed to induce state action, and to protect the interests of all concerned."

Dean Samuel T. Dana, declaring that he was unable to see anything "un-American" in public regulation, told the conference that "the power to regulate is the very essence of any government, the *sine qua non* of organized society." Certain important limitations on the regulatory power of the Federal Government are imposed by the Constitution, he said, but the individual states are free to go as far as they like, provided the regulation is by "due process of law." Numerous decisions by the courts indicate that they are likely to be decidedly liberal in permitting the states to control the use of natural resources by their owners if such control can be shown to be in the public interest.

"So far as forest lands are concerned," he declared, "this should not be difficult. There is ample evidence of the value to society of the trees, forage, wildlife and recreational opportunities which the forest provides and of its beneficial influence on climate, streamflow and erosion. Improper handling of the forests is certain to have serious social consequences. As timberland owners themselves have frequently pointed out when asking for public cooperation in such fields as fire protection, taxation and credit, what happens to the forests is of far more importance to the general public than to their proprietors. This fact apparently leaves no

doubt as to the right of society to intervene in the handling of privately owned forests so far as may be necessary to protect itself from the injurious consequences of mismanagement."

No one with a first hand knowledge of field conditions is likely to claim that the present management of the forest of the country is satisfactory, he said. On the other hand, it is doubtful whether the picture is quite as black as the alarmists have painted it. "As additional information becomes available, the ratio between growth and drain appears to be more favorable than previous estimates had indicated. When fire is kept under control, nature is showing surprising ability to reclothe denuded and heavily cut areas. Most important of all, an increasing number of private owners are apparently showing a real interest in forestry.

"This change of attitude on the part of owners and the general public bodes well for corresponding improvements in the handling of privately owned forest lands. Human nature and business being what they are, however, it is too much to expect that voluntary action will shortly result in placing most of the areas under a kind of management that is satisfactory from the standpoint of society. There will always be a considerable number who will not, or who think they cannot, adopt acceptable practices. Public regulation may therefore prove a desirable means of bringing such owners into line."

To be successful, Dean Dana declared, regulation must be both definite in purpose and flexible in operation. Conceivably its objective might range all the way from adequate protection of every forest property from fire to its management for annual sustained yield.

"As an intermediate goal," he said, "I suggest legislation providing that forest lands not to be cleared for some other use must be kept continuously productive, and that all cutting on such lands must be done under plans approved by an appropriate state agency."

Public regulation of any type is only one, and probably not the most important, of many measures necessary to improve the management of forest lands so as to safeguard the dual interests of their owners and of the general public, he concluded. "Some of these measures, in such fields as taxation, credits, protection, acquisition, research and education, require further state and federal cooperation than has so far been forthcoming; while forest owners have a very real obligation to determine by thoroughgoing and unprejudiced study whether they cannot materially modify present practices to the benefit both of themselves and society. Regulation that is sufficiently flexible to give consideration to local conditions may actually be helpful to those who are interested in doing this, and will protect the community against those who are not."

Wilbur C. Hall, chairman of the Virginia Conservation Commission, addressed the conference on the development of conservation in Virginia, while Carl P. Russell, regional director of the National Park

Service, described the significance of National Historical Parks, one of which, the Colonial National Historical Park, was visited by the conference. Speakers at the Annual Banquet of The American Forestry Association were Ashton Dovell, Speaker of the Virginia House of Delegates, and Vernon M. Geddy, vice-president of Colonial Williamsburg, Incorporated.

An unusually interesting field trip made it possible for those attending the meeting to visit historic Williamsburg, York-

town and Jamestown, under the guidance of staff members of the Colonial National Historical Park and Colonial Williamsburg, Incorporated. Another field trip—one of the real highlights of the meeting—was to Franklin, Virginia, as guests of the Camp Manufacturing Company and the Chesapeake-Camp Corporation, to inspect a modern pulp mill as well as saw-mill and planing mill. The meeting climaxed with a trip into famous Dismal Swamp over the logging railroad of the Camp Manufacturing Company.

WOODLAND PORTRAITS

(Continued from page 260)

alive. We should not forget the debt that we owe the frog. He is said to have been the cause of the discovery of wireless transmission of electricity and consequently radio and all of its amazing developments. In addition to this he has a high economical rating for the destruction of unpleasant and noxious insects.

The toad is another of our woodland friends who deserves more honor and appreciation than he usually receives. Of all nature's creatures none is more harmless and few more beneficial than the toad. He is one of the policemen who protect our gardens against desperate and destructive insects. The toad should be welcomed and encouraged, he should be treated with kindness and respect. You will not need to confine him in order to cultivate his intimate acquaintance. He will choose a lair under your porch and there you can usually find him whenever you desire to visit. You need not be afraid to handle him for he has no teeth with which to bite you and the myth that toads cause warts has long ago been laid away among the superstitions of our grandfathers. Drop a grasshopper or a cricket in front of him and see the lightning rapidity with which it vanishes.

The spotted salamander is a creature of another color, a night prowler, a dweller in dark places. He shuns the sunlight as we would shun his dark and clammy lair. At home either in the water or on land he is often found under stones or in decaying logs in damp places. Tradition has it that he could live in fire but this tradition like many

others has no support in fact. Truly an underworld character, he has none of the alert smartness of the frog, none of the wise and calm appearance of the toad. His small eyes give him an appearance of cunning, his blackish body with its yellow blotches is suggestive of unhealthy things and places. It is said that he can discharge a poisonous secretion but I have found that he can be handled without fear. Take a picture of such a creature out in the glaring sunlight and you would be committing a most unpardonable artistic error. To take him in the dim light of his normal surroundings is difficult if not impossible. Flashlight solved the problem and you see him in what appears to be a reasonable and natural setting.

Let us leave our amphibious subjects for a time and look at some of our insect neighbors. Here we have a butterfly poised on a clover blossom, a creature of beauty, grace and color, but one that is useless to mankind and in many cases injurious to plants and trees upon which we depend for food. The frogs and their relatives on the other hand, while not clothed in such gay raiment, have the virtue of not only being harmless, but are often very useful allies. The photograph of the butterfly was made by stalking the insect from flower to flower until it paused long enough to allow for an exposure.

Moths are closely related to the butterflies and are similar to them in many ways but are mostly nocturnal in habit. Here is another instance where they beguile us with bright colors and pretty

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ways while their progeny destroy our possessions. This tribe includes some of the most destructive of all insect pests. They range all the way from the clothes moths that despoil our furs and woollens to the gipsy moth, the tent moth, the army worm and the codling moth that devastate our trees or spoil the fruit. Some species are most spectacular in size and color and are much sought by collectors, among these are the pale green luna moth, the ceeropia, the promethia and the polyphemous with the "eyes" in its wings. They can easily be photographed while sleeping during the day or better still when they first emerge from their cocoons.

It seems appropriate to conclude our woodland portraits with the tortoise and the hare, but in this case the hare happens to be a cottontail rabbit. Our Briarpatch is a favorite haunt of the cottontails and any winter morning after

a light snow their footprints give mute testimony to their midnight frolics. Keen ears and sensitive noses warn them of the approach of danger and it is no easy matter to get them within range of the camera, but this one, apparently, was not alarmed by the cautious movements of the photographer and lingered long enough to allow the snapshot to be made.

There is no closed season for the hunter with a camera, there are no game laws, no bag limits. He can hunt in his back yard without disturbing the neighbors or he may range as far afield as it pleases him to go. The hunter who trades his gun for a camera will lose nothing and gain much. In addition to the pleasure and recreation of camera hunting he has a further pleasure in enjoying his trophies afterward. He leaves no trail of blood and dead bodies behind him and he seldom comes home with an empty game bag.

CASE OF THE WHITEFISH

(Continued from page 257)

The larger common whitefish have a habit of jerking vigorously while coming surfaceward, or spiralling swiftly to work the barb loose. When they try these tricks you have to exercise all your skill or the fish will break away. Often, too, the fish play 'possum by remaining perfectly still for several moments, or they will even swim upwards, causing you to think you have lost the contest. If they start jerking or circling, ease up on the line; but if they stay quiet or swim upwards, then draw or reel the line in faster. If a fish drops off, lower the bait at once and it is likely the same specimen will bite again.

Whitefish move in schools, and if especially hungry will bite briskly. If not stirred by keen hunger, they may nibble lightly or merely suck in the bait. They are indecisive in their manners at such times—languidly inspecting the bait, backing off, then once more approaching to sample it.

When at the surface, whitefish usually stop struggling, so a quick, easy lift over the gunwale brings them safely into the boat. It is advisable, though, to use a net in case the extra strain should tear the hook from the soft cartilage. The average weight of the eastern whitefish is two pounds, and for the western species it is about one pound. Common whitefish weighing three pounds are caught in Adirondack waters, and heavier specimens from the Great Lakes and other northern regions.

Still-fishing as described accounts for the largest number of whitefish, since the fish move slowly along the bottom and take bait leisurely. However, occasionally some are caught by trolling. This method has not been so successful principally because anglers have used lures with hooks too big, have given too strong a jerk to set the hooks, and have recovered line too rapidly for whitefish.

The aim has been to secure lake trout, bass, or pike, and so the outfits and manner of retrieving have not been suited to whitefish specifications.

In comparison with other species, whitefish have seldom been caught by trolling. One veteran angler, D. E. Roberts, of Albany, New York, just to prove it could be done, landed eighty common whitefish in one month by trolling in Piseo Lake, in the Adirondack Mountains. He found them to be lively, sporty fighters when given the chance to play. Trolling also has brought good results in Otsego Lake in New York, where a variety of the common whitefish is abundant. And it has been my fortune to land several by long-line angling. I remember trolling one day for lake trout, using a nickel Old Lobb spoon, and hooking into a two and one-half pound whitefish that fought so energetically, from the moment it grabbed the lure until it reached the surface, that I felt sure I had hold of a laker. If whitefish were capable of doing that—in coming through such a depth and distance—there seemed to be no reason for doubting their gamy qualities.

The trolling rig may consist of an eighteen-pound-test linen hand-line, sinker, and a small, slim nickel, brass, or copper spoon; or a single or double spinner with long double-snelled hook garnished with angleworms, slice of bait fish, or pork rind strip. Or you may use an eight and one-half-foot medium action split-bamboo trolling or fly rod, level-winding or single action reel, hard-braid or enameled silk line, and lure as mentioned.

In very deep lakes an effective outfit is a rod, sea reel, two or three hundred feet of twenty-pound-test hard-braid silk line, strong level gut leader six feet long, and a lure comprising a small spinner in back of which is a short length of

braided gut leader tied to a swivel at each end and holding a snelled hook baited as previously suggested. The bait twirls and weaves through the water attractively. About ten feet back from the main leader is attached a short, cheap line running downward from a three-way swivel and holding the sinker. Thus the bait slants outward and the sinker warns of obstacles in time to escape becoming entangled. This rig usually works well, for the line does not frighten the fish, and the bait is far enough removed from the spinner to be taken more leisurely by the whitefish.

The trolling should be done very slowly. When a fish has struck, do not jerk, but begin pulling in line slowly and carefully, allowing no slack to occur else the victim may turn and the added strain tear the hook free. But don't force your fish. Troll over sand bars, rocky reefs, gravel areas, and at the edges of channels.

At certain times during the season, generally only on quiet July and August evenings when a hatch of insects is taking place or mature flies have settled on the surface, whitefish come from the depths and for a short period feed upon these insects. This is when dry fly fishing scores if finesse is exercised. If the fish are rising near the buoy, hith up your boat and cast in every direction. You may use a nine-foot, six-ounce split-bamboo rod of dry fly design, automatic or single action reel, eighteen-pound-test dark colored tapered enameled silk line, and a nine or twelve-foot tapered leader of about 3X size.

A long, thin, transparent, high-floating leader keeps the fish from becoming suspicious of line or leader, and allows the lure to rest upon the surface in life-like manner. Whitefish, being rather cautious, will detect the manmade lure and avoid it unless closely resembling the live insects and riding perfectly natural.

Patience is needed, for often the lure will remain motionless many minutes before being sampled. Indeed, in most instances it will not be touched, for it is largely by chance that a fish will strike. While whitefish devour insects avidly during their surface feeding, they will not go much out of their way to snap up a fly.

After the lure has been idle for several minutes, give it a slight twitch by raising the rod tip. Sometimes this intermittent action prompts a hesitant whitefish to strike, or attracts favorable attention. When a "customer" does take hold, give a firm but gentle pull on the line to imbed the hook, and do this instantly or the fish will have ejected the fly.

Now use every degree of skill you can summon in playing the fish, or soon the hook will have parted company. Let the whitefish swim and circle about, going up and down at will, but maintain a snug line. The fight should be waged near or on the surface to avoid extra strain. The victim will attempt to reach bottom, but you must change its course before going too deep. Cautiously turn the fish outward and upward. Let it be-

come completely exhausted before leading it to the net.

So many sportsmen have doubted that the eastern whitefish could be taken on artificial lures that it is a consolation every time I learn of someone else who has been thus fortunate. Last summer at Piseco Lake two experienced anglers tried diligently to catch whitefish on artificial lures. And they managed to land several. A sixteen-inch common whitefish was taken on a Baby Bass-Oreno, another one seventeen and one-half inches long seized a Colorado spinner, and four or five others succumbed to Parmachene Belle and Brown Miller dry flies. Two of these fish struck during midday, under a bright, warm sun. Three years ago, while casting for small-mouth bass, my brother, Morgan, hooked and landed a two-pound whitefish on a red-and-yellow feather-minnow. Other anglers have likewise caught these fish on artificial lures, establishing the fact that casting with flies, spinners, small plugs, and similar baits is a good method for taking whitefish. Comparatively few are captured, to be sure, but it can be done and provides excellent sport.

This, then, is the case of the whitefish. It is hoped anglers will feel disposed to give this species more careful consideration. Whitefish may well be introduced into new waters not only to supply a source of food for other game fish, but also to make possible a new and worth while sport for those Waltonians who like to experiment with different fish, tackle, and methods.

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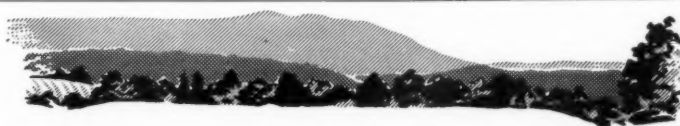
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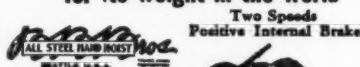
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The Sea Farmer

(Continued from page 251)

his oyster the "Pacific." Oystermen like to call their oysters names.

The old belief that oysters are not fit for consumption in the R-less months of May, June, July and August belongs to the horse and buggy days and has done the Pacific sea farmer incalculable harm. Although not so fat and juicy all oysters are edible in R-less months, while the "Pacific" is then in its prime. Working against nature the sea plunderer was necessarily short-lived; working with nature the sea farmer is now permanently established. In waters where they were long extinct, oysters are again thriving—foreign oysters. Nature made a conservationist of the sea plunderer in spite of himself.

Almost forgotten, in a small Oregon bay, lives a remnant of the native oyster. Owned and marketed by a monopoly whose interest in them fluctuates with the market price, their plight is pitifully tragic. Here they languish in dwindling numbers, a feeble reproach to that self-seeking instinct in man that exploits everything less powerful than himself.

Fire on the Mountain!

(Continued from page 249)

heavily timbered mountainside across the valley. Red flames leap up from the trees, followed by a great billow of black smoke. The smoke thins somewhat and turns almost white, and you notice there are three separate columns. The lookout makes another mark on the photograph.

The worst of the storm is over now. The lookout steps to the fire-finder and swings the sights to bear upon one of the spots previously noted on the picture. The cross-hairs split the smoke column. He reads the azimuth and vertical angle; notes the section and township on the map that is mounted flat on the fire-finder. All the necessary data he quickly jots down on the report form. Then he swings to the next smoke. Six fires in his immediate territory he writes down in rapid succession. Many of the strikes have not yet shown smoke.

He goes out and throws the switch. He lifts the receiver. The hum of the line tells him it is still in working order. From where you sit you can hear the static popping like pistol shots through the receiver. He reads the reports over the wire with telegraphic brevity and hangs up. Time is precious to the men on the other end of the wire. You marvel at so much information being passed along so swiftly.

The lookout then checks his readings on all the fires to make sure there are no errors. He answers the telephone, then goes out and connects the radio antenna. "I'm to stand by on the radio every fifteen minutes, on the quarter-hour," he explains as he opens the door to the

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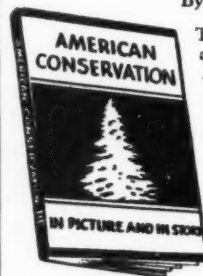
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small radio cabinet and adjusts the dials. "Other stations will stand by at different intervals, and the headquarters set will be on all the time. That way we're sure to contact any fire crew that calls in."

You are somewhat surprised to learn that at that very instant seasoned fire chasers are already on the trail. Fully organized fire crews, completely equipped in every detail, are ready to hit the trail, awaiting only the order to move. Smaller detachments are already on their way to re-enforce the fire chasers. Trucks loaded with fire tools, bed rolls, telephones, radios, rolls of out-post wire, gasoline, portable fire pumps and several thousand feet of fire hose are lined up at the ranger stations and CCC camps throughout the park. Other trucks are loading pack horses, these to be swiftly carried as near to the fire as possible by truck before taking to the trails.

Our lookout reports that fire number three is spreading. Three minutes later twenty-five additional men are on their way to this fire. Two hours later the radio tells you that they have reached the fire and have checked its run. The brief, hard shower has helped in checking its spread.

Other reports begin to come in, some encouraging, others quite alarming. The Panther Ridge fire is in an old burn, roaring through the young reproduction. Unless they can head it off and drive it into the slower burning green timber it will be all over the mountain by night. They need one hundred more men; also ten sets of fallers to help drop the snags.

The lookout explains that snags are the dead and rotting trunks of trees left standing long after they were killed by fire, insects or disease. Their tops and branches have long since dropped off, and now they stand tall and gaunt, sometimes to a height of two hundred feet, among their younger and more fortunate brothers. They are dry as dust and need only a flying spark to touch them off. Once ignited they burn like torches, sending out showers of sparks on the breeze to spread destruction hundreds of feet around them. For this reason they must be felled on both sides of the fire line.

By dark there are two hundred men on this fire, but with the setting sun the humidity has started to rise. They report that they expect to have it under control by midnight. Then will come many days of mopping up—extinguishing every last spark. Until the fall rains come the area must be regularly patrolled to see that no hidden, smoldering fires spring up.

All the other fires are either out, under control, or will be brought under control before the heat of another day. Seventeen forest fires, spotted over many square miles of primitive, mountainous forest lands have burst forth and been conquered before your eyes in the brief span of a few hours. Other fires resulting from this storm, but not yet large enough to be detected by the lookouts, may burst forth any time within the next few weeks. These fires, known as "sleepers," will be attacked and extinguished

with the same dispatch when they break.

Any one of these fires could have become a major forest fire and have laid waste to thousands of acres of beautiful forest lands had it been left to run its course. No need to dwell upon the sorry spectacle of its wake. Neither man nor bird nor beast would care to be in that desolate area, and even the fish would not live in the dwindling, ash-tainted streams.

The visitor has had a bird's-eye view of the fray, but as yet he has witnessed only one phase of fire suppression—detection. Let us now suppose that he were able to accomplish the difficult feat of being in two places at the same time. We return to headquarters and set the clock back a few hours.

The fire dispatcher is at the telephone warning all lookouts, rangers, patrolmen and CCC crews to be ready for lightning fires. The United States Weather Bureau has telegraphed "lightning in the high mountains." The fire-hazard graph shows a steady downward trend, with a mean humidity reading of fourteen per cent for the preceding day. The hazard sticks, when weighed on the special scales, show nine per cent saturation for the smaller and twelve per cent for the larger, which means that the forest cover is so exceedingly dry that even a sudden rise of humidity—the relative moisture content of the atmosphere—would help only a little should a fire get a good start. In short, the situation is serious.

All over the park fire equipment caches are given a final checking. Rangers and fire patrolmen stay close to their telephones. Frequently they take down the receivers and listen—a thousand small birds seem to be chirping on the wires. It is the static electricity forming in the air, the first actual evidence of the approaching storm.

A telephone report comes in. The message has been relayed from station to station, originating at some forest out-post many miles away in the southern part of the state. A lightning storm is traveling northward.

Now the lookout on Anvil Rock, ninety-five hundred feet up among the glaciers on Mount Rainier, reports that he can see the storm rolling in. It is still thirty miles away. Again the warnings go out.

Other lookouts are picking up the storm now. Their bearings show it moving toward the eastern portion of the park. All regular work has ceased, and crews are going in to their camps and stations to wait. Six hundred CCC workers are getting their equipment ready. Smaller groups, the "fire chasers," are ready to leave on a moment's notice.

The skies grow black and the storm breaks. Men wait tensely for word from the lookouts. Nor do they envy the lookouts at such a time.

The worst part of the storm passes, and the telephone goes into action. Calls are coming in faster than the dispatcher can take them. The telephone operator sorts them out—nothing but fire calls are

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handled now—and connects them with the dispatcher in swift rotation. The switchboard is flashing constantly, and the jacks are flying like shuttles. The chief ranger stands beside the dispatcher, helping him take the calls, plat the fires and dispatch the chasers.

The dispatcher is swinging a large brass protractor on an inch-scale plating map. He draws lines from one lookout and then another, and where these lines cross he sticks a pin to mark the locations of fires. In cases where a certain fire is reported by only one lookout, or when there is some doubt as to the exact location, he places a large sheet of cross-section paper on the map and calculates the exact spot where the lookout's vertical angle shot strikes the ground. This latter method is slower, but enables him to locate the fire by using the bearings from a single lookout.

On the wall hang copies of the panoramic photos taken at all lookout stations with the photo-recording transit. With these he is able to study the location of the fire and the surrounding forest cover. He can at once appraise the danger of spread and determine the number of men and the type of equipment to send to each fire. And so it goes, all that day and night, and possibly the next day, until all the fires are discovered and extinguished.

The chief ranger waits only long enough to determine the portion of the park hardest hit, then goes to that district. He is the fire chief for the entire park.

Out in the big timber men are digging fire trails through the dense undergrowth, felling blazing snags, backfiring, carrying back-breaking loads of equipment and supplies. Batteries of powerful little fire pumps are roaring their challenge to the flames. At a distance they sound like a swarm of angry hornets.

The men toil doggedly on, advancing with each foot gained, falling back to begin anew when the flames jump the trenches. In the untouched timber beyond the fire lines squads of spot-fire patrols are gridironing every square rod, extinguishing the small fires resulting from sparks carried over the fire lines by the wind. And wind there will be, for even on a still day the draft of the flames sometimes reaches hurricane velocity.

Look at the fire fighters. Their clothes are torn and black with charred wood and dirt. Sweat pours off their bodies and makes little rivulets down through the grime of their faces. Their mouths are parched, even though the water boys pass in never ending procession, and their eyes sting from the acrid smoke.

But by this time our visitor has had his fill of fire suppression for one day.

Over his breakfast coffee next morning his newspaper informs him that several small fires were started by lightning in the National Park. "... but fortunately none of them became large enough to do serious damage." He rubs his chin and ponders that word "fortunately."

WHO'S WHO

Among the Authors in This Issue

ALBERT D. ROSE (*Fire on the Mountain*), who is Fire Dispatcher for Mount Rainier National Park, tells the true story of forest fire protection as it actually operates, as opposed to the highly dramatized misconception which so generally prevails. Mr. Rose was thoroughly grounded in forest fire control work through his experience in the United States Forest Service in western Washington from 1926 to 1931.

J. M. BENNETT (*Some Desirable Shade Trees*) is a Michigan man and forest graduate of Michigan State in 1919. He is Superintendent of Parks and Forestry and in charge of roadside development in the Detroit area. Mr. Bennett is the author of two books and numerous articles on trees, shrubs and gardens.

BLYE ENGLIS (*Enter the Sea Farmer*), an ardent conservationist, lives at Portland, Oregon, where she is connected with the Public Library. She writes with enthusiasm in the natural history field and here tells the story of oyster cropping, and the genesis of the entrance of the gigantic Japanese oyster into the American bivalve industry.

MORTIMER NORTON (*The Case of the Whitefish*) lives at Earlsville, New York, and has been associated with the New York State Conservation Department for many years. Mr. Norton is a great fisherman, hunter and camper—his stamping ground the Adirondack Mountains.

G. H. COLLINGWOOD (*Jack Pine*), is Forester of The American Forestry Association.

HUGH SPENCER (*Woodland Portraits*) is a camera, pen and brush artist of Chester, Connecticut, who finds his meter in the illustration of native plant and animal life. He specializes in difficult and unusual subjects and a long and growing list of educational and scientific books now carries his work.

THE COVER—"Fire on the Mountain"—a photographic study made by John Kabel on Georgian Bay.



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Hugh Spencer

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